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Journal of Electricity

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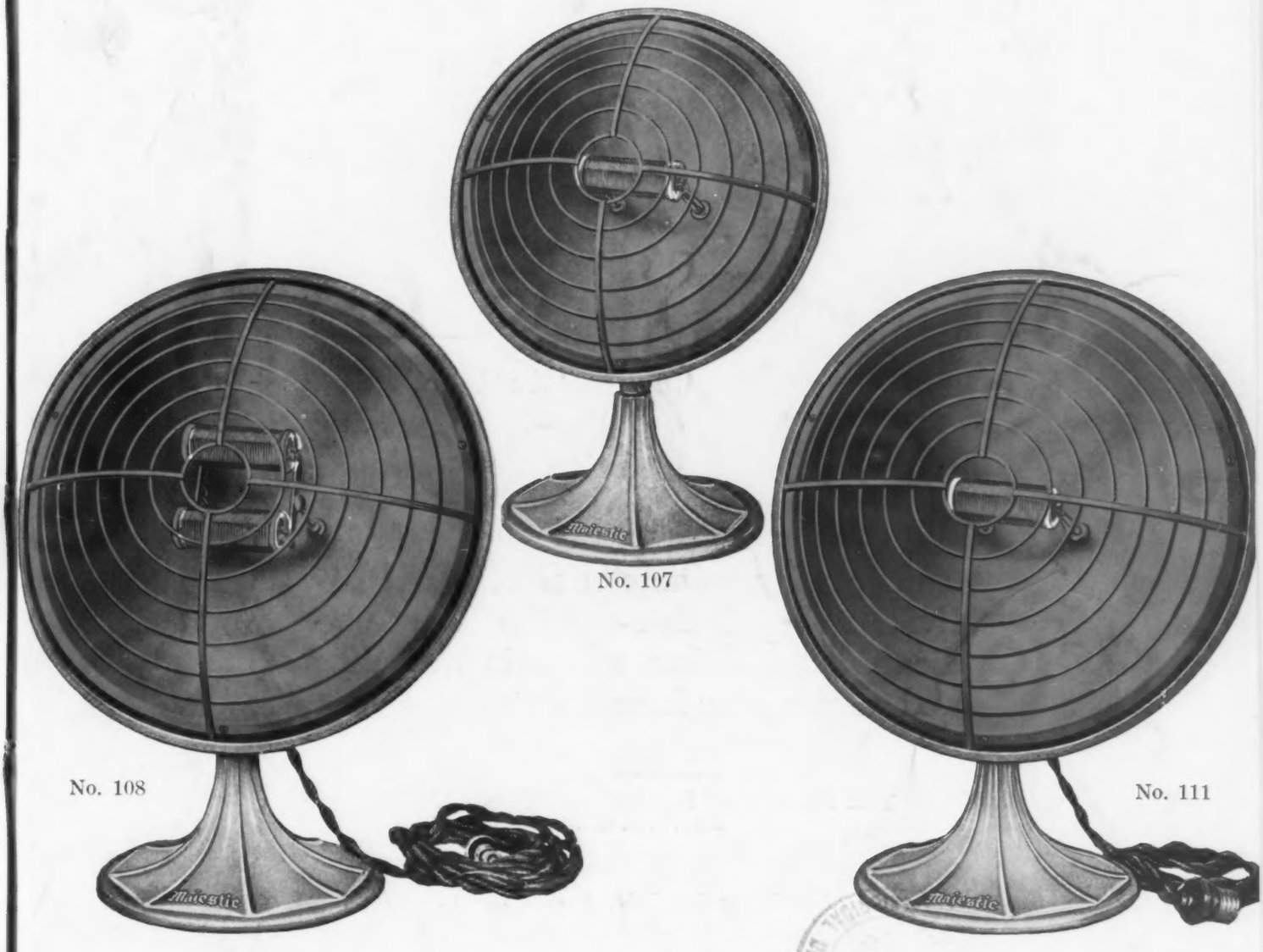

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Journal of Electricity

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C. T. HUTCHINSON, Acting Editor
G. W. BARKER, Associate Editor
J. W. OTTERSON, Assistant Editor

G. C. TENNEY, Managing Editor
ROBERT SIBLEY, Consulting Editor
CLOTILDE GRUNSKY, Contributing Editor

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A Few Words About Our New Home

AS this issue reaches our readers, the Journal of Electricity will have moved from its old quarters in the Rialto Bldg., to a new location in the Mohr Bldg., 883 Mission St. (near Fifth), San Francisco. The McGraw-Hill publications will occupy the entire fourth floor of this new reinforced concrete building. The space has been fitted up to suit our particular requirements and gives us one of the best equipped publishing offices in the West.

This move has been necessitated by the rapid and continuous growth of the industrial development on the Pacific Coast, a growth in which the Journal of Electricity and other McGraw-Hill publications have played no small part. With the increased facilities at our disposal, we will be able to render our clientele a still better and more efficient service.

Certain features of the new quarters we wish to call to the attention of our readers. The illumination of the offices will conform to the latest developments of the art. This is especially true of our composing room where the exacting nature of the work requires a diffused light free from all shadows. Electric heat will be used wherever possible.

We cordially invite our many friends to call and inspect our new plant in San Francisco.

Readers are asked to make allowances for the fact that this issue is a few days late. The moving of our offices explains the slight delay.

Mr. I. M. Cawshus wanted to save money.

He put it in the bank.

This is what he got.

He saved money.

Mr. Ernest D. Lore wanted to make money.

He used his bean.

He put in a stock of Bryant No. 651 Appliance Switch Plugs.

Every time he sold a percolator, a grill, a toaster, an iron or whatnot, he put a No. 651 on the cord and charged accordingly.

He talked No. 651's to every one of the Christmas shoppers who came to his store.

He remembered that while people buy expensive appliances only occasionally, they use them all the time. No. 651 makes them easier to use.

This is what he got.

He made money.

Moral:—the difference between 30 and 4½ is 25½.

Christmas Suggestion:— your wife could use a new sedan this year.

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Charles P. Steinmetz—Engineer, Scientist, Humanitarian

FROM childhood to the end of life Dr. Charles Proteus Steinmetz's reaction to the pressure of his environment is one of the great and beautiful events in human history. Having been denied the advantages of physical strength and comfort he set about in an orderly determined manner to develop the highest possible mental strength of which he might be capable. His purpose was always altruistic; it was ever to help the world as he found it; and to change it from what it was to what it should be.

He became a profound student of the sciences, linguistic arts and humanities. He worked strenuously to accomplish their coordinated understanding. He thus accomplished the development of a "dimensional mind" to an extraordinary degree, a mind that enabled him later in life to do so many things of the highest value in the electrical sciences and industries. With the mental equipments of the mathematician, physicist and chemist he developed extraordinary powers for discerning the nature of the most difficult problems encountered in the promulgation of engineering progress. He was never known to be daunted in such matters; he was as much at ease in the study of the internal energy of the wind wherewith to drive an airplane as of the high voltage phenomena encountered in the transmission of power. He passed through years in which he stood virtually alone as the one man in the world to whom men could turn for effective aid in the solution of the most difficult electrical problems.

CHARLES P. STEINMETZ,
Chief Consulting Engineer, General Electric Company

Dr. Steinmetz assisted his brother engineers to an untold degree by his books and papers, by his profoundly intelligent vision and by his example of persistent, ably directed enthusiasm. When some declared him a superman he insisted that he was just a plain human being developed by THE WILL TO DO raised to the highest attainable degree. No career can, therefore, encourage the young man more for he is assured on the highest authority that if he will but try he also may contribute greatly to the cause of human progress and the advancement of civilization.

Dr. Steinmetz was deeply humanitarian and always ready in thought and deed to help his fellow man in every walk of life. His spirit has been communicated to so many that it will live and continue in action as long as there are people to work for a better world.—*Harris J. Ryan*

Utility Advertising and Better Public Relations

AN eastern central station has chosen the phrase "Is Your Service Good? If Not, Please Let Us Know" and has printed it 31,000,000 times in the newspapers of the city which it serves. It has spent a sum equivalent to one cent per meter per month in placing this message before the public.

While the phrase occupied only a small portion of the advertisements published, it demonstrated that utility's faith in one of the first precepts of advertising. A message must be repeated, repeated and repeated and the customer must read it, and read it and read it again. The more it is told, the more it is read; and the more it is read, the better off both company and public will be.

Too few utility executives have faith in the value of advertising as a means of bettering public relations. They have been prone to adopt the stand that since their company was a virtual monopoly, there was no reason for spending money in advertising. As it pointed out in an article on another page in this issue, no utility is so perfect that it has nothing to tell its customers, no new business fields to exploit and no phase of the business which is not fully understood by both people and politicians.

Advertising **will** better public relations. A series of advertisements designed to inform customers in a comprehensive manner of the service which is being furnished for their use, to acquaint them with the physical extent of the plants and distribution systems and of the duties of the men and women who operate them, is a step in the right direction. It must be remembered that out of correct information comes understanding, and that understanding begets confidence and without confidence there can not be good public relations.

The Thrilling Drama of the Colorado River

WAVE the American flag, shoot a gun in the dark, or have a pretty woman say "damn" and any experienced theatrical manager knows that your act will bring down the house, especially if your audience is comprised of average specimens of the genus, "Great American Public." Artifices such as these are known as "hokum" in the parlance of the stage.

"Hokum" has had its share in popularizing the thrilling western drama, "The Colorado," several scenes of which have already been enacted. Arizona has run away with the villain's role, promiscuously firing heavy artillery whether the scene has been darkened or not. Some of the explosions have been of the pop-gun variety while others have been as effective as shots from a 16-in. naval rifle. For instance, Arizona's recently avowed intention to develop such portions of the Colorado as lie within its borders, sans outside help and sans regard for other states of the Basin, has almost rung down the final curtain.

More recently still, the American Legion, assembled in national convention in San Francisco, has taken the center of the stage, flag in hand. In a resolution to Congress, the Legion sets down its several reasons for the immediate development of the Colorado River. To quote from the resolution:

"Whereas, This project is vitally necessary to safeguard the lives and property of many ex-service men and thousands of others living in the Lower Colorado River Basin now constantly threatened with devastation and destruction from annual floods of that river, and

"Whereas, Under said project thousands of ex-service men and women would be given the preferred right to acquire homes and farms by entry upon several hundred thousand acres of public lands in Arizona, Nevada, and California now arid and worthless, but which by this project will be made intensively productive and valuable.

"Now be it therefore Resolved, that the American Legion in national convention assembled does hereby call upon the Congress of the United States to adopt a program for the ultimate complete development of the Colorado River and as the first unit of that program to pass legislation that will carry out the recommendations heretofore made by the Interior Department providing for the construction of said Boulder Dam and All-American Canal . . . ."

Highly laudable reasons, these. The necessity for flood control is immediate. Homes could be provided for many thousands of ex-service men. No direct mention of power is made in the resolution, indicating that the Legion has no ulterior motives in seeking the devlopment of the resources of the river.

Despite the above mentioned developments, the drama has not yet reached a climax. Congress, an actor which was introduced early in the play, has still some important lines to recite. Arizona may produce a new type of lethal weapon at any time. In the meantime those most concerned in the play must sit back, not knowing whether the final curtain will drop on a comedy, a tragedy, a farce or a red-blooded western thriller in which everyone "lives happily ever after." One thing is certain. There will be more "hokum."

Correctly Analyzing Christmas Buying

IT is a far cry from Christmas buying to football, yet the intelligent merchant will have his entire year's business pointed at Christmas just as a wise coach will have his team pointed for one "big game." Yuletide merchandising is just like merchandising at any other time of the year, only more so. The desire to buy, which must be created at other times of the year, through advertising, window displays and sales, is foremost in the mind of the public. It remains for the electrical merchant to secure his just share of the business which will result.

But before he starts thinking about getting people into his store, he must replenish his stock. It is here that the submerged rocks which have wrecked many a good business ship are to be encountered. Certainly buying is an art which is not

easy,—one which requires diligent study. Nor can selling be classed as one of the simple tasks. But merchandising by the use of known facts and experience plus a generous amount of good common sense, while not easy, can be made at least easily controllable.

Let the electrical merchant who is figuring on a large volume of Christmas business, carefully analyze his sales for past years. By so doing he can almost accurately gage the stocks which will be required this year. Unless he keeps in mind the limitations of his own business, and the needs of his own trade, he may find his shelves filled with non-usable goods and his books filled with red ink entries when the first of the year rolls around.

Two Baskets of Fruit and a Good Lighting Effect

THE proprietor of a large department store in one of our western cities recently purchased two large baskets of artificial fruit to be used in decorating his windows. These cost $50 each. They were works of art and he was proud of his purchase. He was certain that the baskets of fruit would aid in selling more goods, for decorations of such character add a distinctive touch to the windows and make the display more attractive.

One hundred dollars of inoperative show lighting equipment miscellaneously strewn about in this dealer's windows would look like grim death on a skeleton horse. It would sell nothing. Installed, it would be hidden from view. The public only would observe the result achieved through the use of the equipment,—a flood of brilliant white light or splashes of soft solor. It is the effect that would help to sell the goods. The cause is not a part of the display.

Then why stress the equipment when making a sale of increased show window lighting? Show the effect. That is what the merchant wants to see.

Compared with the cost of window trimming, window lighting is but a grain of sand on an ocean beach. A merchant will spend $1,000 or $1,500 for a set of drapes which can be used only for a season. His windows could be equipped with an up-to-date lighting system for less than this sum. He will change his trimmings twice and three times a year, while the lighting system will be adequate for five or ten years.

Is it not time that all branches of the electrical industry joined in proving to the merchant that lighting effect will sell more goods than a basket of fruit?

An Old Pudding with a New Brand of Sauce

TO many people, the term, "government ownership," is a pleasant abstraction that conveys the suggestion of lower costs to the consumer than under private ownership. This idea persists among the unthinking, in spite of the great weight of accumulating evidence to the contrary. Unfortunately, state bureaus and commissions charged with the responsibility of regulating privately owned utilities do not exercise control over similar state and municipally owned utilities. Thus, the absence of uniform accounting methods make it almost impossible, except by deduction, to make comparisons that would disclose the truth as to the alleged saving of government over privately owned utilities.

It is not especially difficult to camouflage the facts beneath a glittering mass of figures, and, unless their attraction is particularly directed to the absence of such items as taxes—municipal, county, state and national—depreciation, maintenance and upkeep reserves, amortization of bond issues, the reports of government owned utilities may make what appears to be a fair showing.

People seldom go beyond rate schedules in their comparisons, without regard to the fact that the general tax levy is the old reliable that comes to the rescue in providing for whatever deficit may exist as the result of their operations. The something-for-nothing, get-rich-quick song of a Wallingford would provoke nothing more than a smile of derision from the wise man on the street nowadays, but he has yet to learn to recognize the propaganda in favor of government owned utilities as merely a repetition of an age old story in modern clothing. It is a part of the duty of the utilities to see that the passive majority is constantly on the alert or the active majority will put something over on them again.

One Excellent Medium for Transmitting the Service Message

THE matter of public relations is, more than ever before, commanding the attention of all utilities. No single phase of operation is considered so important or so far-reaching. No branch of public service offers such a field for individual initiative and effort. For that reason all utility companies are constantly seeking for ways, means and avenues for improving their position before the public.

It is axiomatic that the things we learn at school remain with us in memory and influence for life. We use always the method of division taught us while children; we carry in mind forever the precepts of the class-room. Everything that is done in the home or office can be traced to education. Sometimes it is called "experience" but experience is after all only one form of education.

For this reason it is only logical that the best place for public service companies to start their service message is in the class-room. The story of service can be told no earlier than to the student at school and can never be so impressively portrayed. By reason of association, too, it can never be made so lasting in effect.

From association and experience it is evident that the domestic science classes of the various school departments and the physics classes offer exceptional advantages for presenting the message of utility. It is a subject germane to the class study and the very nature of public service business lends itself to a fascinating mode of presentation. Where else in daily life can so interesting a story be obtained?

CURRENT COMMENT

One person out of every twelve over the age of 17 gainfully employed in the United States is on the public payroll, according to recent census figures.

The Public and Its $4,000,000,000 Annual Payroll

The salary bill which the people are paying is nearly $4,000,000,000 a year. The annual cost of salaries paid directly to active and inactive government employees is $91 for every person over 10 years of age gainfully employed, who comprise in the last analysis, the large body of taxpayers in the country. It has been ascertained that there are approximately 2,700,000 public servants on the payroll of national, state and municipal governments. Finally, this payroll is costing every man, woman and child in the United States $34 a year.

Such a stupendous outlay requires constant study if retrenchment is to be brought about. Serious consideration must be given to prevention of waste, duplication and to a reduction of useless functions and services.

It would seem that already the country is burdened with a top heavy load of non-producers, yet every branch of government seems to be striving for means to give employment to additional hundreds and thousands. Public ownership of utilities is one such scheme. No thought is given to the added tax burden which will ensue, nor to the added number of non-producers that will swell the public payroll.

Some one should point out to the poor benighted public the following truth: More public servants, higher taxes, higher cost of living, lower purchasing capacity of the dollar, and lower standards of living. More business in government and less government in business is the answer.

As was to be expected, the announcement by the Public Ownership League of America of a movement for a nation-wide, government owned superpower system, has brought forth a wave of approval from the municipal ownership journals. The Journal of Electricity presaged several months ago this action when the question of superpower was first brought to the attention of the public through the press. To quote from an editorial in the July 15, 1923, issue:

The Press on the Subject of Superpower

> Before a beginning can be made, publicity and public sentiment must favor such stupendous developments as will undoubtedly be needed to conserve and utilize our power resources, but there is a grave danger in some of the publicity which has appeared in connection with "superpower." Electricity is associated with magic in the popular mind and many articles appearing in the popular magazines tend to stimulate this attitude. Writers with little evident knowledge of the engineering difficulties, political procedures, capital requirements or economic aspects of the generation and transmission of electricity draw liberally upon their imaginations to paint misleading word pictures of an immediate era when electricity will be practically free and universally applicable.
>
> The danger lies in arousing an anticipation of realizing the benefits too soon. Demagogues have been quick to appreciate the opportunity to play upon the popular fancy by the promise of government-developed "cheap power." While it was necessary to secure financial aid from the government for the original superpower survey this need no longer be done. The electric utilities are able, and stand ready to effect the desired end at an earlier time than would result from any governmental participation.

The Sacramento (Calif.) Bee heartily applauds the Public Ownership League for its foresightedness and at the same time condemns the private utilities for coincidentally making the same announcement. In commenting upon the statements of noted engineers that superpower systems will ultimately cover the nation, this paper says:

> That being so, why should not these vast superpower systems belong to The People and not to the corporations?
>
> Why should not the government, with the aid of the states and of the municipalities, have control of this vast distribution of power, for the benefit of all; not permit private and greedy monopoly to grasp it all, for the enrichment of a few and the exploitation of the many?
>
> And if this public superpower system to cover the continent would be a good thing for this nation and for her people—which it would be—the mere fact that there are great difficulties should be all the more incentive to spur zealous hearts on to an ultimate victory.

The Butte (Mont.) Miner adopts a more modified stand. It merely refers favorably to the enormous savings which would be achieved through the construction of a superpower system, making no recommendation as to who shall own or operate the network. The paper declares:

> Whatever is economically correct and promises a tremendous saving in expense is bound to be adopted in the end.
>
> The whole history of industrial endeavor since the dawn of time proves this to be an immutable fact.

Elimination of tax exempt securities either by Congressional action, or in some cases by the action of the legislatures of states themselves, seems a certainty. Nowhere does there seem to be anything but opposition to securities of this nature. Electric light and power utilities will look with favor upon any law which would remove government bonds of all types from the tax exempt class. It is believed that if such action were taken money rates would be lower on other classes of securities. One thing is certain, taxes would come down.

Tax Exempt Securities and the Press

In commenting upon tax exempt securities and the increased tax rates which have followed the war, especially in municipalities, the Bingham (Utah) Journal says:

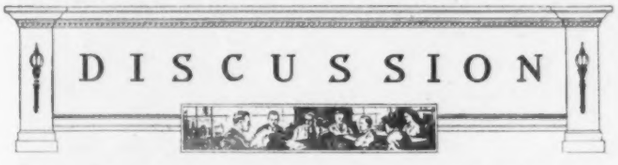
> The very fact such bonds are free from federal taxes is an encouragement for their issuance in greater quantity than needed, and is one of the contributing causes of extravagance by states and local governments. The process is much as follows: Because such bonds are exempt from taxation they are easily marketed. Because they are easily marketed, state and local authorities are more disposed to issue them upon the slightest provocation. Knowing this, every interest which wishes something done at public expense finds it very easy to convince state or local authorities that what they want should be granted and the expense covered by bond issue to be paid at some future time.

The same tone is expressed by the Helena (Mont.) Record, in commenting upon the unjustness of tax exempt government securities. This paper states:

> But the social injury they do is to put taxes upon the other and poorer people that should be paid by the bond owners. The governments have to be supported, and owners of taxable property support them, while these bond owners enjoy every protection of the governments and pay nothing. Congress should submit an amendment to the constitution making all bonds taxable. The bonds in existence cannot be taxed, but they will mature and disappear in the course of time, forcing the money in them back into taxable property.

According to the Albuquerque (N. M.) Herald, serious consideration will be given to the passage of a law forbidding the issuance of tax exempt securities by government agencies in that state when the legislature again convenes. This paper brings out the following point:

> This steady increase of untaxed billions compels a heavier and a heavier tax on land, a progressively heavier tax on railways and other public service corporations, a constantly increasing tax on manufacturers and their equipment; it means more taxes for the storekeeper—and all are passed on to the general public and the consumer with their own special share of the taxes—to be paid ultimately by the householder and the "small" taxpayer.



Nevada Governor Disagrees with Article on Colorado River Development

To the Editor:

Sir: I have recently read the article by Mr. F. G. Baum in the Journal of Electricity dated September 15, 1923 and entitled "Power Must Bear Burden of Development on Colorado River."

While Mr. Baum is a very excellent technical expert his article displays an ignorance of many important economic and political phases of the Colorado River problem. If his suggestions were followed there would probably be no Colorado River development for generations to come, which to certain special interests, may be a most desirable condition of affairs.

On yesterday Governor Hunt of Arizona and his Colorado River committee requested from the Federal Power Commission that Arizona be permitted to proceed in certain plans without reference to her sister states. This request is opposed by all other interested states as being entirely impracticable and inimical to the public welfare.

After several years of intimate contact and study of the political as well as engineering phases of the problem, I am convinced that the creation of a tri-state authority by Arizona, California and Nevada is the only practicable solution of the problem.

It has been generally agreed among the majority of those who are most familiar with the situation that the following procedure will offer an adequate solution of the river problem.

(1) A meeting of official representatives of the states of California, Arizona, Nevada and the United States to reach a tentative understanding as to the allocation of water rights, both for power and irrigation, as between the interested states and the Federal Government.
(2) The ratification by the Arizona legislature of the Colorado River compact.
(3) The creation by proper action of the legislatures of California, Arizona and Nevada of a "Lower Basin Conservancy Commission" with full power to carry forward a constructive development. engineering, construction and administration of the lower Colorado River.
(4) The commission to be given corporate power by the Federal and interested State governments enabling it to issue bonds for construction purposes.
(5) The fundamental work of the board should be flood control with irrigation and power as secondary factors. The flood control feature should be financed by the Federal Government and the appurtenant engineering work should be under the direction of Federal engineers.

J. G. SCRUGHAM,
Governor of Navada.

Carson City, Nev.

Suggests Possible Remedy for Overcoming Fires of So-Called Electrical Origin

To the Editor:

Sir: After reading a short editorial in your last issue of the Journal of Electricity on the foolish and harmful bugbear of electrical fires I would like to suggest a move, that in my mind, would be wise for the electrical industry to take.

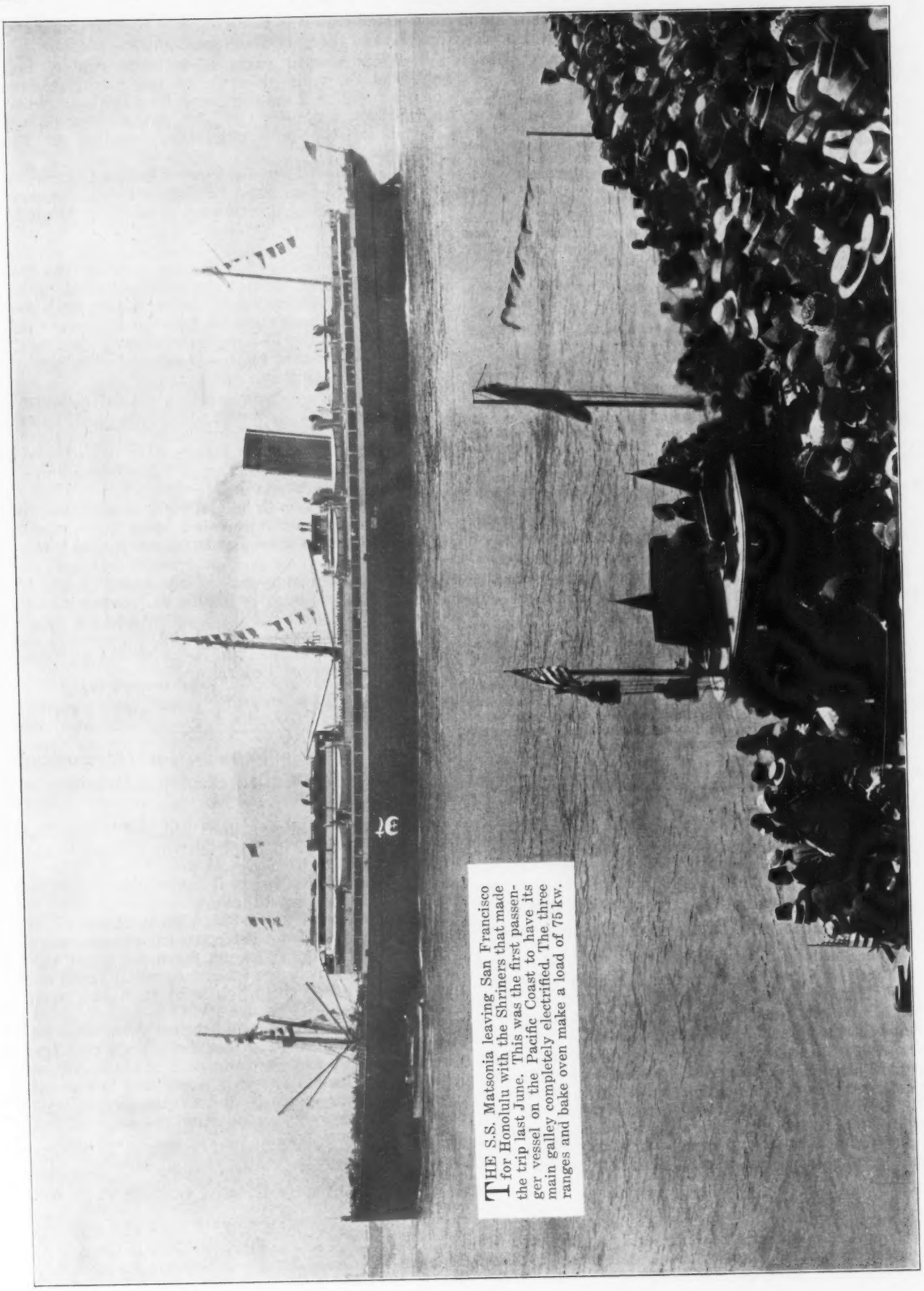
We know as a group that almost, if not all, of the so-called fires from defective wiring are caused by defective fusing. Why not teach the public that the best job is a poor job when incorrectly fused and even an admittedly poor job is at least safe from fire providing the fuses are right?

If everyone afraid of electrical fires were authoritatively told that they could eliminate that fear by having a reliable electrical man put their fusing in shape and lock it there, it would add to our volume of business and help quite noticeably in overcoming this unsavory reputation which electrical construction now has.

Why not ask all fire chiefs to report when they think electricity caused it, that the fire was possibly or evidently caused by defective fusing. Think this over.

CHARLES HARTLEY,
Hartley Electric Company.

Ogden, Utah.
Oct. 6, 1923.



THE S.S. Matsonia leaving San Francisco for Honolulu with the Shriners that made the trip last June. This was the first passenger vessel on the Pacific Coast to have its main galley completely electrified. The three ranges and bake oven make a load of 75 kw.

Electrifying the Modern Pacific Coast Passenger Liner

By Millard R. Hickman
Superintending Engineer, Matson Navigation Company

IT is Mr. Hickman's belief that modern vessels of tomorrow will be so designed that it will be unnecessary to take the steam lines from the engine room. Instead electricity will perform the duties formerly assigned to steam and will be used for cooking, heating and water heating throughout the vessel. In this article he tells of the installations that have been made on some of the Matson line boats.

CHRISTOPHER COLUMBUS in sailing westward to "The Indies" probably would have been as terrified as his crew had he passed within hailing distance of the Leviathan which crossed the same seas that he did some five hundred years after his first expedition. His fleet of three boats could all have been stowed away on the new giant of the seas and his 112 men could have been put to work in the steward's department, without the passengers on the vessel noticing any particular crowding.

Despite this advance in the size of the vessels that are designed to travel the seas, the most important step toward making ocean travel a means of transportation which will be enjoyed and desired, is the placing of innumerable comforts and safety devices aboard the present day ocean liner. To have traveled with Columbus would have been a nightmare and to have made the trip from Boston, Mass., to San Francisco in 1834 with Richard Henry Dana would have been nearly as horrible as his report of the trip in "Two Years Before the Mast" indicates. Who would have undertaken either of these trips for pleasure?

The most noticeable advances, making for the comfort of the passengers, have been made during the last fifty years. It is true that the size of vessels has had a considerable amount to do with the comfort of those who traveled, but it is largely the refinements that have been made in appointing the cabins, dining salons, social halls., etc., and the installing of safety equipment that has made the desire to travel by sea a lasting one in the minds of the individual living in the twentieth century.

In the days when the Clipper ship sailed from Massachusetts to California, the passenger was allotted a dismal cabin lighted by oil lamps, and totally unheated. Meals consisted largely of salt pork and canned goods, supplemented by hard bread. Fresh meat was an unknown article on the menu. Food was cooked on a wood or coal burning range which despite the cook's (he had no claim to the title of chef then) efforts, continually burned the food, and sent repulsive odors throughout the vessel. A bath with even cold salt water was a luxury, the limited fresh water supply of the ship being used only for cooking and drinking purposes.

The application of steam to the driving of vessels did much for the advancement of navigation. Without this source of power present day ocean transportation would not be in the advanced state that it enjoys. Steam, whether it be applied directly to the propelling machinery or in a roundabout means has made speedy navigation possible, but electricity must now be acknowledged to be the leading factor in the development of comfort and safety aboard ship. Steam must of course be given the credit for initially developing the electrical energy, but the latter form of power, because of its flexibility and adaptability to conditions, is displacing other forms of energy in the processes which require the finest control and which deliver the most comfort to the passenger.

Today probably one of the most interesting parts of a vessel is the galley. It is there that electrical men have for some time been endeavoring to install electrical equipment of the most modern nature. Marine architects have been considering such installations for some time, but it has been only in the last few years that any installations of a complete nature have been made. The Leviathan, in being reconditioned, has had one of her restaurant galleys electrified, but the main galley has not been so treated.

United States Navy vessels have had their galleys electrified, as have a number of Standard Oil tankers. United States Army dredges, which are operated by electricity, have had electrical installations placed in their galleys and a few of the trans-Atlantic liners also have electrical installations in at least one of their galleys.

On the Pacific Coast there are a few vessels on which part of the galley equipment is electrical. The Southern Pacific automobile ferry, Shasta, operating on San Francisco Bay, has an electric range and grill, and the S.S. Napa Valley of the Monticello Steamship Company, plying between San Francisco and Vallejo, has a partial electrical installation in its galley.

Matsonia Leads the Way for Passenger Vessels

Due to the farsightedness of the officials of the Matson Navigation Company who worked in conjunction with the Pacific States Electric Company, the first Pacific Coast liner to have its main passenger and crew galley completely electrified is the Matsonia. In this vessel, which plies between San Francisco and the Hawaiian Islands, there are three marine type, hotel ranges, a multiple deck bake oven,

three electric grills and four seven-slice toasters all manufactured by the Edison Electric Appliance Company. The ranges are of the 110-120-volt type and are furnished with direct current. There are four 4,000-watt grids on the surface of each range, and two 3,000-watt elements constituting the top and bottom elements are placed in each of the ovens. Each of the elements is controlled by a three-heat switch, permitting a control of heat both on the range surface and in the oven that has been a revelation to the chef. The three griddles are being used for breakfast service in the preparation of hotcakes and here the electrical method has triumphed by permitting this class of cooking to be done in a place removed from the main galley. The three electric ranges have replaced six oil ranges.

The bake oven is an Edison No. 200 three deck type, representing a connected load of 9 kw. The oven capacity is 60 one-pound loaves per bake or acommodation for six standard 18 x 26-in. roll pans. Each deck is of course tiled and heated from both top and bottom. Thermometers register the temperature of each deck separately and three-heat switches on each element provide a simple means of accurate heat control.

The Matsonia's Generating Equipment

To provide the necessary generating equipment to carry the load which at its peak is between 900 and 950 amp. a new turbo-generator was installed in the Matsonia. This equipment consists of one DeLaval geared turbine operating at 5,840 r.p.m. driving a 125-kw., 125-volt direct current Western Electric Company generator at the rate of 1,050 r.p.m. There are also one 50-kw., 125-volt, 300 r.p.m. General Electric Company, engine driven generator and a 30-kw., 125-volt, 300 r.p.m. engine driven generator manufactured by the same company. To reduce the heat in the generator room and thus guard against temperature rise of the generator a powerful blower system which supplies 7,500 cu. ft. of air per minute, has been installed there.

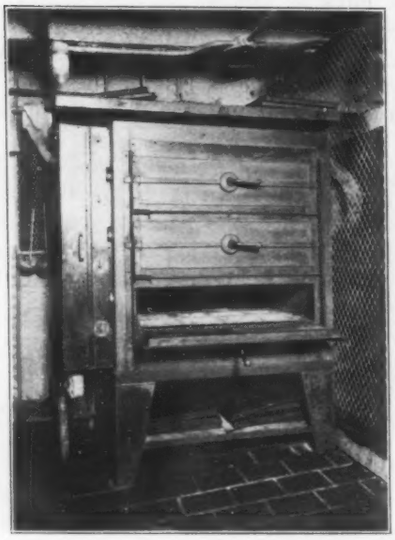
The large turbine driven unit carries the full load at sea and the smaller units are used only when the vessel is in port and the load is low. The turbine uses steam at 225 lb. inlet pressure and exhausts at about 10 lb. back pressure, directly into the low pressure receiver pipe of the main engine which drives the propelling machinery of the ship. This effects a material saving in fuel oil in that in addition to the elimination of the burning of oil in the galley, it also assists in the driving of the vessel.

The present generating capacity is approximately 200 kw. and the recorded load at its peak reaches 110 kw. The average load during the daytime is 85 kw.

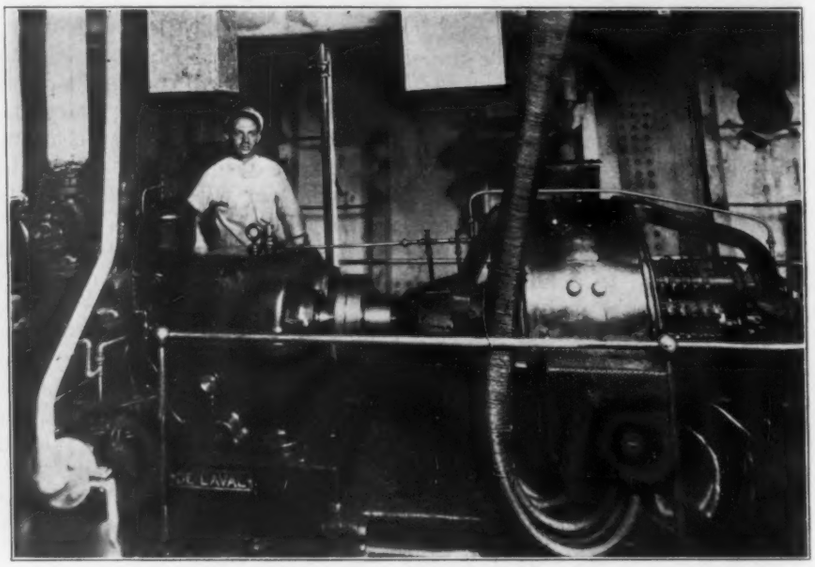
While no actual figure can be obtained which will show the saving that has been effected by the use of the electrical equipment in the galley, because of the many conditions which enter into the amount of oil that is consumed in a voyage, it is certain that a material saving will be noticed when the operation is considered over a period of a year. A saving can be noticed in the food that is served to the passengers, however, because of the smaller shrinkage that occurs while food is cooked electrically. This is particularly noticeable in the baking of bread and the roasting of meats.

The electric ranges have been found to be extremely speedy in their operation. The chef, who previous to the time that the electrical equipment was installed on the vessel had made 49 trips on her, declared, after his first trip on which he used the equipment, that they were the most efficient ranges that he had ever used. As an example of the speed of the ranges he showed by actual demonstrations that fresh bread could be toasted on both sides in exactly three minutes.

The installation has also become exceedingly popular with the galley crew because of the fact that the temperature has been considerably reduced since the electrical equipment was installed. The trip to the Hawaiian Islands is made largely through trop-



All bread and pastry for passengers on the Matsonia is baked in this oven.



A DeLaval turbine and reduction gear is used to drive the 125-kw. Western Electric direct current generator on the Matsonia.

ical and semi-tropical waters, the temperature at sea ranging around 80 deg. F. on deck. Before the electric ranges and bake ovens were installed, despite the fact that a forced ventilation system was employed, the temperature in the galley would average around 140 deg. F. On the first trip that the ranges were used the thermometer readings showed that the average temperature was only 112 deg. F.

The chef on the Matsonia is completely satisfied with the bank of electric ranges that has been installed in his galley.

Passengers have also been made more comfortable in their staterooms because of the use of electricity on the Matson line boats. Each of the vessels operating between San Francisco and Honolulu is equipped with about 50 air heaters, most of which are of the convection type. These heaters are kept by the electrician of each vessel and are delivered to passengers as they are requested. The heaters are of the portable type and are rated at 660 watts.

A trial installation of water heaters was recently made on the company's vessel, S.S. Maui. The water heater is one of a type manufactured by W. Wesley Hicks, of San Francisco, and is attached to two hot water faucets in one of the men's lavatories. The heater consists of a small copper boiler so thoroughly insulated that the radiation loss is negligible; it is provided with a self-contained thermostat which maintains the temperature of the water at about 170 deg. F. The principal advantages of this heater are that it overcomes the objectionably large and sudden demand characteristics of faucet heaters of sufficient capacity to render good service, and reduces the cost of serving and wiring.

A 990-watt heater was used at first and this was found to supply more than enough water for the two faucets, and a 660-watt element was substituted. This element delivered an entirely satisfactory supply of hot water and it is the intention to hook the heater up to four faucets to determine if one heater will carry the load. Ultimate development of the principle of heating water at the point of its use, by means of small and medium sized electric heaters, will no doubt mean that 30 or 50-gal. heaters will be installed where three or four bathtubs and six or eight lavatory faucets can be reached. This will eliminate the necessity of leading the steam lines out of the engine room for the purpose of heating water for toilet purposes. Air heaters for use in state rooms will solve the problem of heating the vessel and there will be no necessity of taking steam lines from the engine room for that purpose.

The Electrification of Auxiliary Equipment

Other vessels operating on the Pacific Coast have also seen the advantages of using electricity, particularly in connection with the operating o fauxiliary equipment. Until recently ship operators and engineers in charge of construction have been using a small amount of comparatively low voltage direct current for lighting purposes, but recently the Luckenbach Steamship Company, Inc., operating vessels between the east and west coast of the United States, in reconditioning three of its vessels, installed in each two turbo-alternators furnishing 220-volt, three-phase, 60-cycle current. All of the principal auxiliary equipment, such as the main circulating, main feed, fire, sanitary, condensate and other pumps

Wesix water heater attached to two hot water faucets in the men's lavatory on the S.S. Maui.

are operated with this current. The lighting circuits are taken off of a transformer which steps the current down to 115 volts. This is an advance worthy of note and it seems that it will not be long before many similar installations are made aboard ship.

The Matson Navigation Company is contemplating building a new vessel which will be put on the run between San Francisco and Honolulu. This vessel will be equipped with all of the latest comfort-making and safety devices and will be designed to cover the 2,100-mile distance in four days. Electrical equipment will play a large part in making this ship one of the most modern on the Pacific Coast and the installations that have been placed on the present Matson boats were made primarily with the intention of securing accurate information regarding their advantages. The results have been found so satisfactory that no doubt a larger amount of equipment will be installed in the new boat than has ever been placed in any passenger vessel now in operation anywhere.

Advertising for the Central Station

By Theodore Watson
Service Manager, Johnston-Ayres Company,
Advertising Specialists, San Francisco, California

THIS is the first of a series of articles by Mr. Watson, who has specialized on corporation advertising. Any commodity—be it service, stock or merchandise—can be sold in increased amount by properly directed publicity. Mr. Watson brings out many points in his series which should interest every member of the electrical industry and which should serve to guide in the formulation of advertising plans by merchandisers as well as central stations.

ADVERTISING can be likened to electricity. It is a force, intangible, potent, capable of performing prodigious and useful work when skillfully and intelligently handled, but fatal to the one who attempts to apply such a force in a meddling manner.

In the case of electricity, however, we deal with curves, pole lines, conduits, tools, material, and algebraic formulas, while with advertising we deal more with the human equation, or the general public interest. In its application to the development of the central station, advertising must be directed along two parallel lines each performing at its respective terminal a different work but performing this work simultaneously. One of these is improved public relations and the other, an increased sale of the station's chief commodity.

Upon the efficiency of the engineering—how skillfully the entire undertaking is made to co-ordinate with surrounding influences and modifying factors—depends the effective utilization of the energy. Again—too little energy put through the wires won't turn the wheels fast enough; too much, causes trouble somewhere along the line.

As a class, the central stations have employed too little of the force of advertising in the drive for progress and development. In fact, from some quarters advertising in **any** quantity has been questioned. It has been argued, especially in cases of virtual monopoly, that advertising is a waste of money because all the business belongs to the utility anyway.

But, where is the central station with lines filled, with peaks leveled, and valleys raised, with consumers all satisfied, and a community 100 per cent behind the utility! None exists of which it can be said "there is nothing to correct,—no lesson to teach our people and our politicians,—no phase of electric service not fully understood and utilized by all of our consumers,—no new uses for current to be exploited."

Until all the homes, and shops, and factories in the country have been electrified, there can be no excuse for a let-up in central station advertising.

The Public Utilities Advertising Association has gathered some pertinent statistics on utilities advertising. In a statement by the president of the association, the surprising assertion is made that the utilities, including central stations, are investing in advertising an average of only ¼ of 1 per cent of annual gross business. The least that should be set aside for business-building advertising is 2 per cent. Other industries invest on an average of 5 to 7 per cent while some go as high as 20 per cent. As the president of the Public Utilities Advertising Association says, "It does look as if some of us haven't acquired a very keen sense of business proportion."

Any successful manufacturer will advance many reasons why he should advertise—reasons based on sound economics. But, compared with the central station, the problems of conducting the average business are simple, chiefly because the factor of public "good-will" looms so large across the central station manager's vision.

Referring once more to the statements of the Public Utilities Advertising Association, there are given among many, the following reasons why utilities should adopt and adhere to strong advertising programs:

"We have a $17,000,000,000 investment to protect.

"This gigantic investment is subject to attack. and harassment by all sorts of regulatory and legislative bodies, by the general public and the newspapers to a greater extent than any large and legitimate business in the country.

"We are far in the rear of every other modern business in the field of advertising.

"We need the greater good-will of our 33,000,000 customers.

"Our exclusive business is salesmanship in its broadest application, and every form of salesmanship needs the fifty-fifty push and punch of advertising.

"The greater the demand for any product, the less will be the ratio of production cost, with proportionately greater economy of operation.

"It is the specific function of advertising to create consumer demand and consumer preference."

There is a valuable byproduct of central station advertising not included in the above splendid arguments in favor of adequate advertising. It is the effect that such advertising has on the company's own organization.

One of the central station manager's greatest concerns is the training of his personnel. The burden is the greater because of constant and manifold contact with the public on the part of the central station.

Good advertising can do wonders to put the organization on its toes—to enthuse, to educate, to engender pride in each individual for his job and his company, and his responsibility in nursing public good-will. The benefit of this, of course, is reflected in a more cordial relationship between employees and the public.

Safe-No Flame, No Fumes
Cook Electrically
THE CALIFORNIA OREGON POWER COMPANY
YOUR PARTNER IN PROGRESS
Ad. 10-A
3 col. x 8 in.
Rogue River Division
THE SPIRIT
that is above price
A NATION is great through the spirit of its people; an industrial organization serves and grows through the spirit of its personnel.
You like to do business with this or that institution because of the courteous spirit, the friendly "personality" it gives forth.
We believe the men and women who make up the Puget Sound Power and Light Company with its subordinate companies reflect a most unusual esprit de corps. They are one big, congenial family with the common purpose of giving to the public the best there is in them.
True to themselves and their organization, they are true to the wide world with which they come in contact.
The great majority have more than a perfunctory interest in the service they render—for they are numbered among the owners of the company. As security holders they share in the earnings. Fully 25,000 men and women, including two-thirds of the officers and employes, own the outstanding stocks, bonds and other securities of the Puget Sound Power and Light Company.
The splendid spirit of the organization manifests itself in play as well as in work. Each summer sees literally hundreds of families enjoying their vacation, at the Puget Sound Power and Light Company's recreation camp and park surrounding Lake Tapps. Fine fishing, boating, bathing, play a part, while on shore is complete camp equipment — hot and cold water, community ranges for cooking, electric lights — all conveniences, even to electric irons. Other similar recreation centers are to be created in the Pacific Northwest. A summer camp site has just been selected at American Lake, near Tacoma.
Christmas sees its tree festivals; each month is a huge dancing party to which all the 2,200 employes of the company and their families are bidden; midwinter gets its recognition in an ice carnival with hockey games and skating.
And each member of this organization knows his or her efforts are watched and appreciated by executives and that the highest positions in the company are open to those who can and who will.
Thus comes "The Spirit That Is Above Price."
Wouldn't you, too, like to be identified with such a family as this? The way is open, through ownership of securities in the Puget Sound Power and Light Company. Just, now Preferred Stock is available at a marked price to net better than 7%, on the investment. Consult the nearest office of the company, any of its employes, or write for full information to Puget Sound Power and Light Securities Company, Electric Bldg., Seattle.
Puget Sound Power & Light Company
Bake—Electrically
THE CALIFORNIA OREGON POWER COMPANY
YOUR PARTNER IN PROGRESS
Ad. 5
3 col. x 8 in.
Contractors and Builders of Homes, CORRECT WIRING WILL HELP YOU SELL
Coast Counties Gas and Electric Company
Santa Cruz · Watsonville · Hollister · Gilroy
Suppose you Shopped for Electricity
PACIFIC GAS AND ELECTRIC COMPANY
P·G·and E·
"PACIFIC SERVICE"
To Entertain Charmingly
—use Electric Appliances
PACIFIC GAS AND ELECTRIC COMPANY
P·G·and E·
"PACIFIC SERVICE"
NOTICE
To consumers of Electricity
PACIFIC GAS AND ELECTRIC COMPANY
P.G.and E.
"PACIFIC SERVICE"
The Mightiest Servant in California

Central station advertising falls naturally into two distinct classes, namely, good-will and sales. The above samples show both types. The central piece of copy is a particularly fine example of the good-will type.

So much for the need concerning a program of advertising for the central station.

Now then, what should determine the course of such a program and how should the amount of the appropriation be arrived at?

In most ways, the building up of a central station's business parallels that of the manufacturer of a product. In the old days, the plan for launching an advertising program was about as follows: first, it was decided that some advertising ought to be done. Then, the question was asked "How much shall we spend?" This having been determined, some sort of program was arranged for spending the money. This was followed by carrying out the program and expending the amount set aside.

Today, the procedure is more like this: First, a study of the concern's selling problems is made to determine what must be accomplished, or what the result must be for the business to go ahead and develop and progress in a more rapid and satisfactory manner. This having been determined, the next task is to answer the question "What must be said to the public and to the trade to bring about the results desired?" Next, comes the preparation of the messages, which is followed by the proper broadcasting, through publications and other means, of these messages. It can be seen, that following this procedure, arriving at a proper amount to be invested in advertising is a simple matter. To sum up—learn the task to be performed, provide the means to accomplish this task, after which the cost will be self-evident.

It will be noted that the difference between these two methods is the difference between guesswork and the scientific application of ascertained governing facts. In one case the objective is vague—the outcome doubtful or entirely speculative. In the other, the objective is already in sight at the start, and each step of the journey logically and accurately measured off and established.

That is precisely the procedure for the central station to follow. The station has a product to sell. It has a definite market to reach. Its problem—like that of the manufacturer—is to dispose of its product to this market in ever-increasing volume.

Surveying that market and blue-printing a plan to effectively cover it is just as much of an engineering job and follows just as scientific lines as the laying out of a distributive system for the station. The advertising appropriation is then accurately gaged to perform the task assigned and to reach the objective determined.

That is the common sense method for central stations to follow in answering the question of "How much for advertising?" That this method has not been adopted more generally accounts for the low average percentage of gross earnings set aside for advertising by utilities as a class.

Some individual utilities do meet their requirements. If I may be allowed to again quote from the statements of the president of the Public Utilities Advertising Association:

"The selling of public service—essential and indispensable public service, if you please—is known, by experience and test, to respond as rapidly and in as great a measure to judicious advertising as the selling of any legitimate merchandisable commodity.

"The demand for any worthy product—service, security or commodity—can be created and stimulated by means of advertising.

"Experience shows that public utilities which have adopted definite advertising programs on a budget basis have never abandoned this policy but, on the other hand, have shown a tendency to expand their advertising appropriations, year by year.

"Advertising, properly used, will increase the turn-over for utilities just as it does in other lines of business."

Now, what are the factors which must be considered by the central station in analyzing its advertising and selling problems so that the proper program can be laid out?

Briefly, some of these factors are:

The attitude of the public toward the particular utility.

The attitude of municipal and state administrations.

Proportions of the business to be developed as between industrial and domestic.

Possible cooperation on the part of dealers in electric appliances.

Development of adequate sales and new-business departments.

Whether or not to sell appliances in competition with dealers.

And other factors.

These will be discussed more in detail in the following articles.

Seven Years May Be Needed for the Reconstruction of Japan

That five to seven years will be needed to restore the devastated area in Japan is the estimate that the Commercial Attache at Tokyo has cabled to the Far Eastern Division of the United States Department of Commerce. Greatly increased activity throughout the Empire should result from the full employment of labor during that period, according to the same report. This activity will be reflected in foreign purchases of building and construction materials and also in increased purchasing power of the masses.

Plans and specifications for the rebuilding of the affected area are being drawn up at present and it is expected that they will be completed in time for them to be presented to the Diet when it convenes Nov. 10. At present no permanent construction is being permitted.

The shipbuilding and electrical industries were seriously damaged by the earthquake and the demand for electrical equipment is heavy at present. It is stated that the government will probably make direct purchases of lumber and steel products in the United States. Steel framed reinforced concrete buildings are generally conceded to be the best suited for business buildings in Japan and a heavy demand for structural steel is anticipated. Demand for machinery to replace that destroyed in factories is heavy and the demand for sawmill equipment is especially active.

Dehydration of Fruit in California

By R. C. Griffin
Power Sales Engineer, Pacific Gas and Electric Company
San Francisco, California

THE dehydration of fruit is eliminating the weather hazard and is improving the crop results for many California growers. Electrically operated dehydration plants are in successful operation and offer many advantages, some of which Mr. Griffin touches upon in this article.

CALIFORNIA has long been known for its wide variety of delicious fruits. No other section of the entire United States produces such a varied crop of marketable fruits and the area in California that is devoted to fruit growing is increasing each year. More diversified crops are being planted and the distribution throughout the state of crops heretofore grown only in certain sections is each year becoming more noticeable. This is of great moment in that it reduces largely the element of entire failure of crop. Owing to variance in weather conditions, insect and other pests and lack of irrigation supply the growers have at times suffered through the fact that they were individually dependent upon only one kind of fruit crop and an unfavorable crop condition has seriously retarded their development. Under the newer condition of planting more than one kind of fruit this possibility will be largely eliminated and the entire fruit growing industry should be in a more stable position.

A very large part of the fresh fruit crop never reaches the market in its original state. This is necessarily true on account of the nature and characteristics of the fruit itself. Figs, for example, are extremely perishable and the loss to dealers through spoilage is very high. For this reason fresh figs are a liability to a dealer and not an asset. Melons are easily bruised and when so injured are quickly spoiled. This same condition obtains in the case of prunes, grapes and other fruits. For this reason it is necessary to so treat many fruits as to permit of their being kept for long periods of time and of being handled without damage. Hence, the matter of fruit preservation has long been the subject of considerable study. Various methods have been tried out with the result that dehydration has been found to be the most feasible and practical process that can be devised.

Dehydration is no new idea, having been practiced for several hundreds of years. It is said to be the oldest method of food preservation known to the human race. However, dehydration methods have changed with time until now the process is the result of much scientific study and application. The extensive development of the canning industry has interfered somewhat until recently with the advance of dehydration practice but since the world war increased interest has been aroused and there are now many dehydration plants in operation on the Pacific Coast.

An interesting comparison between the laid down cost of canned and dehydrated foods is in the case of tomatoes shipped from California to France. Canned tomatoes costing $2.60 in California would cost $7 laid down in Havre; the equivalent amount of dried tomatoes selling in California for 26c. per lb. would cost 40.5c. in France, a saving of $6.595 or 94 per cent. This, to be sure, is an extreme case, as tomatoes are 94 per cent water, yet it serves to illustrate the savings which can be made in every line where dried products can be made to replace canned goods.

The production of dried fruits in California is increasing and is a decided insurance against loss to growers due to conditions beyond their control. The dried fruit crop at the present time is divided about as follows: prunes, 56.8 per cent; peaches, 23.8 per cent; apricots, 13.8 per cent; apples, 3.1 per cent; pears and other fruits, 2.5 per cent.

The basic principle of dehydration is the reduction of moisture to the point where bacteria, yeasts and molds—the chief agents of spoilage—are unable to grow and destroy. There are two separate and essential elements involved in the science of dehydration, namely, heating engineering and chemical engineering, and for the fiscal year 1920, so important is the subject considered by the national government, a federal appropriation was made amounting to $50,000 for the study and advancement of the art. This appropriation was possibly influenced by the enormous losses occurring during the month of September, 1918, when early rains damaged the prune crop to such an extent that it was largely a total loss. One grower alone in California suffered a loss of $100,000 all of which could have been prevented by dehydration. This disaster to the prune crop caused a very decided movement towards the adoption of dehydration methods and an intensive study of ways and means.

After the year's work of cultivating, pruning, spraying and all the various branches of growing activity has passed comes the fruit drying season. This is generally during the period of unsettled weather conditions and drying is accompanied by an exceptional hazard. Where drying is done by the sun, out of doors, it is a gamble with the weather, generally with the odds against the grower. The dehydrator takes away this hazard and reduces by a considerable amount the element of loss. It also provides a uniform product which in many cases, because of uniformity, is found to be of superior quality to sun-dried fruit. As an example of this is

the case of prunes grown in Colusa where sun-dried prunes were never given the "Sun-sweet" standard but as soon as dehydration was used the fruit was granted this rating.

The Technic of Dehydration

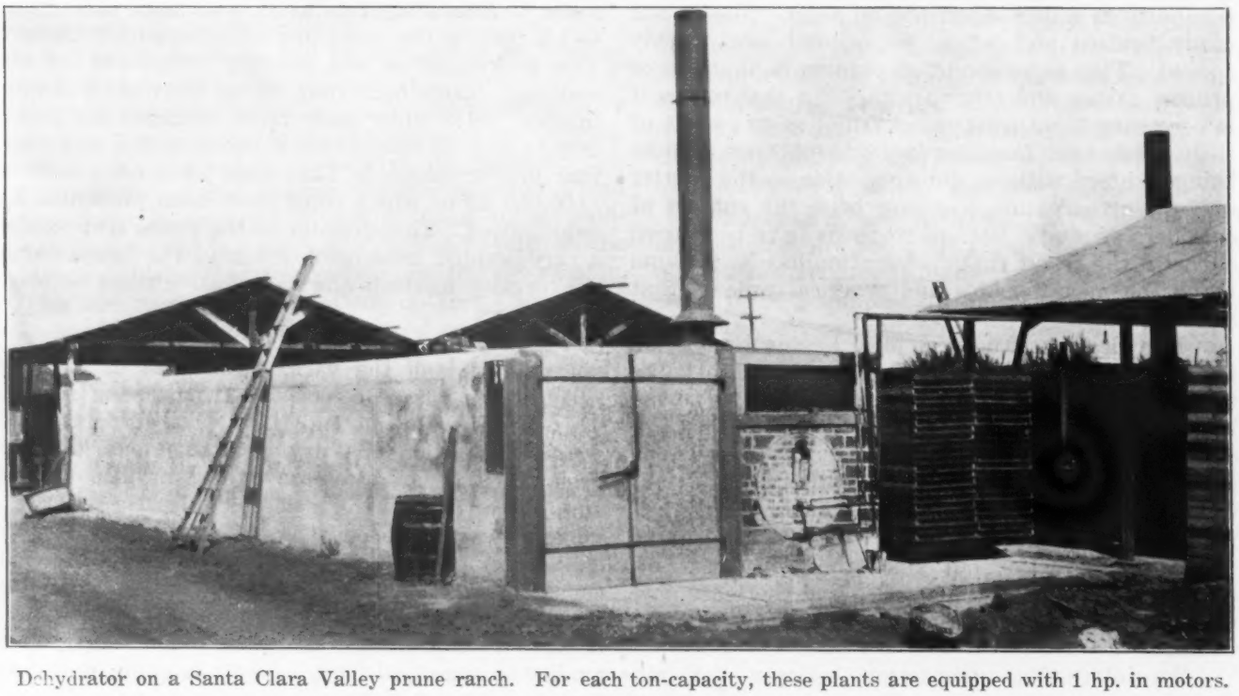
There are many different types of dehydrator but all of the modern plants use a building or tunnel so arranged as to permit of the placing of the fruit in a drying chamber and to further allow the forcing of a draft of heated air over the fruit. Control devices are also employed in order to maintain a constant temperature and accurate regulation of the humidity. The technic of dehydration is extremely interesting although not complicated. It consists merely of passing a current of air over the fruit in such a way as to **gradually** absorb the moisture from the fruit. This process must be gradual in progress for if the air is so dry, or is passed over the fruit so quickly that the moisture is taken from the surface more rapidly than it can be diffused to the surface from the interior of the fruit, a hard shell is formed on the exterior which is known as "case hardening." Case hardening can be avoided only by regulating the humidity of the air within the dehydrator during the drying process. This is most readily accomplished by recirculation of the air which has already passed over the fruit and by exhausting a part of this heated air and adding additional air to replace that which has been exhausted. The air is circulated by means of a large blower which is electrically driven. Dehydrators are generally equipped with approximately 1 hp. of motor capacity for each fresh ton capacity of fruit. Installations usually average about 10 fresh tons capacity per twenty-four hours and the average cost of a dehydrator of this capacity is approximately $6,000.

A typical example of fruit dehydration is that of the prune. Air is passed over the fruit in two directions; in the direction of fruit travel and in the counter direction. When air is forced in the direction opposite to fruit travel it is known as the "counter-current" system and when the air travels with the fruit is called the "parallel-current" system. A combination of these two methods has been found to give the best results.

The dehydrator insures positive and uniform drying under all weather conditions and produces a much cleaner product than can otherwise be obtained. In addition, the land area which would be necessary for the dry yard is available for the planting of trees and can therefore be made fully productive as a dehydrator requires little ground space. This is an important factor from the point of view of real estate and taxes and also because of the possible increase in revenue which it makes possible through increased production.

Does Dehydration Pay?

It is frequently asked whether or not dehydration pays. As an example of the profit accruing from this method is the case of one grower who last year had an exceedingly heavy crop, considerably beyond the capacity of his dehydrator and who was obliged to dry some 3,000 trays in the sun. The fruit being selected at random was presumably of the same quality as that which was dehydated. The dehydrated fruit averaged 41's and was classed as 30-40 while the sun dried fruit averaged 45's and was graded as 40-50. Last year the 30-40 grade commanded a premium of $30 per ton over the 40-50 grade and this fruit showed an increase in weight of about 9 per cent, which increase in weight, at the prevailing rate of $200 per ton, brought an additional return of $18 per ton. It will be readily seen that the increased return from the dehydrated fruit more than paid for the cost of dehydration, which averages about $8.73 per ton, and in addition the fruit was



Dehydrator on a Santa Clara Valley prune ranch. For each ton-capacity, these plants are equipped with 1 hp. in motors.

of a higher grade. This seems to be a very conclusive answer to the question above cited.

During the season of 1922 there were in California 156 dehydration plants and it is believed that the 1923 season saw at least one hundred additional plants in operation. This seems a very conservative expectation when the figures for 1921 and 1922 are compared, for during the former year 7,366 fresh tons of prunes alone were dehydrated in 48 plants while in the latter year 33,389 fresh tons were dried in 126 plants—an increase of 162 per cent in number of plants and of 353 per cent in number of fresh tons of fruit.

Dehydrating Fruits and Vegetables

Electricity will be used this year for the first time in the dehydration of fruits and vegetables in California. The Anderson-Barngrover Company, near Stockton, have erected the first commercial electric dehydrator and will handle all their fruit and nuts in this manner. Electricity will be used in addition to operate the motors for driving the air over the fruit and for illumination at night, thus permitting 24-hr. operation if desired.

This is only one of the many applications of electricity to farm and ranch purposes which are rapidly being adopted by progressive ranchers. The advantages of electricity for heating and for other purposes are too numerous to mention in detail but include economy of installation; reduced labor costs; decreased fire hazard with attendant lowered insurance rates; increased land area available for other purposes and absolute control where desired. This control may be extended to the automatic operation of feeding, motors and other apparatus. Labor costs are constantly before the producer and electricity affords a means of their reduction.

Automatic control is another very essential feature of electric operation. In the case of walnuts, for example, the temperature must not exceed 120 deg. F. or the oil of the nuts will become rancid and the product will be spoiled. For such low temperatures as required for the dehydration of nuts the exact temperature control made possible by electric equipment is ideal. Walnut dehydrators will be constructed in units of approximately 5 tons each and electric equipment can be very readily adapted to this method of unit construction. With the rapid adoption of this method of drying fruits, nuts and vegetables there is opened a vast market for the sale of electric motors and motor equipment, blower equipment, heating apparatus, control devices and wiring supplies.

Building Up a Business Without Capital

ONE of the great financiers of the country, when asked recently as to what kind of business he would advise a young man to enter, replied "A repeat business." By that he meant the sale of some product which brought the customer back into the store periodically. Clothing is such a commodity—so is stationery, so are groceries. Pianos, heavy furniture, works of art, are purchased once for a lifetime.

Electrical appliances, with a few exceptions, come within this latter class. Motors will wear out eventually, of course, and improvements in manufacture will so change the product that the housewife will wish to have the latest model, but in general when the household is supplied with a vacuum cleaner, a washing machine or an electric range, the purchaser does not expect to have to renew these purchases for another ten years at least.

The electrical appliance business, then, labors under a handicap. There are others, as well, which might be enumerated. With the character of a semi-luxury, and in consequence an enforced relatively small turnover, the margins allowed are under those possible in most other lines of merchandise. Rather, in most other lines, the retail price is not fixed, so that the merchant is allowed to set his own figure for resale, and thus his own margin.

As a third item which acts as a handicap, as against other merchandising conditions, the material itself is bulky and requires considerable floor space for its display. Combined with the relatively slow turnover, this means that few electric stores can afford space in the main business district of a large city. On the other hand, store location is a primary consideration in bringing customers into the store.

What is the answer?

The answer is that it can be done. A. M. Smith of Los Angeles together with his wife, are examples of how it can be done. They accepted all these hindrances and added a few more to them. They started almost entirely without capital, for instance. By managing to mortgage their home and to borrow from the bank they gathered together $1,000 with which to start their enterprise. On top of this, they regarded an automobile as essential to their work and saddled themselves with the purchase of a machine on the time payment basis. Further, they confined themselves to large appliances exclusively, foregoing the profits and larger turnover of small equipment, starting with vacuum cleaners and adding washing machines and later, electric sewing machines to their line. Their store was located somewhat out of the main section of the business district and they employed no outside salesmen.

And yet in three years' time, they have built their business up from an initial account of $2,700 with a finance company who was handling their time payment business to some $220,000 during the past year.

The first reason which anyone must assign for this success is the unalloyed hard work which both Smiths put into their problem. When bank payments must be met and business built up in the early days, it was not unusual for business hours to extend from six o'clock in the morning until ten at night. The second reason, is because they have worked to a

plan, building their success intelligently, using each item of progress as a stone on which to build further. They have analyzed their problem and know why they do what they do.

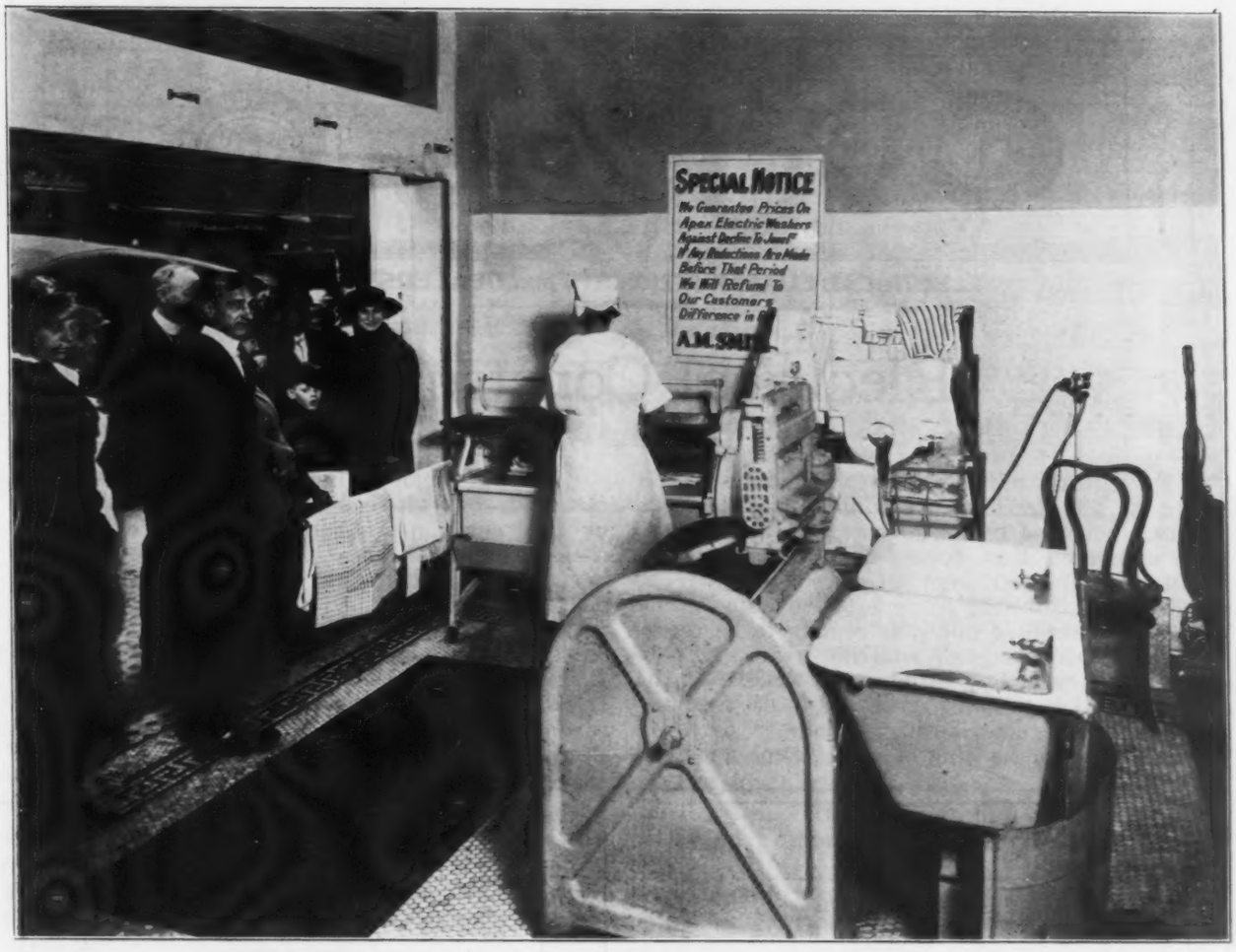
Here are some of the practical methods used in building up this business:

First of all, Mr. Smith believes in concentrating. In his opinion, the man whose interest is in merchandising, will make only an indifferent contractor, therefore he has confined his business to the selling end completely and left electrical contracting to the specialist in that line. Further, he has not added any of the small appliances to his stock. The character of store must be completely modified if small material is to be handled. Moreover, the type of salesmanship required to sell a washing machine is different from that needed to sell electric lamps. By confining his efforts to larger appliances only, every salesman is selected and trained as a specialist in this field. He is encouraged to study the psychology of his customers and to recognize what type of selling argument will apply to the particular individual he is addressing. He is thoroughly grounded in the operation and principles of the equipment and in the finer shades of salesmanship, a training which is more thorough than that required for the ordinary store salesman.

In line with this same theory, the store employs no outside men. Mr. Smith feels that it is not possible to supervise the salesman in the field in the same way that the work of the man in the store is overseen. He is turned out to carry out in large measure his own ideas, and each one relies on his own methods to bring success. It is thus not possible to stamp the same feeling of uniform treatment and of good-will based upon consistent service which it is possible to build up under the closer organization working within the store itself. Further, the maintenance of the store and the advertising required to keep it up means a burden of overhead on every appliance sold. To add to this the commission which must be paid a salesman in the field pyramids the expense of doing business in a way not sufficiently offset by the increase in turnover.

Store location is a matter of importance. With few repeat orders on account of the limited types of appliances sold and the permanent character of the stock, it becomes necessary to maintain a continuous flow of new people to the store. Mr. Smith does not believe in large store rents. His place of business, therefore, although in the downtown district and not difficult to reach, is not on any of the main business streets. As his store expands and demands a greater space his idea is to move into even more central

Interior view of the A. M. Smith Company store in Los Angeles.



The entire front of the store opens to permit pedestrians to view the interior.

location but to save on ground floor rents, possibly using several floors for the storage of his bulkier stock.

One ingenious idea which has brought many passers-by into his store is the shutter arrangement by which his entire store front can be opened. The pedestrian thus has a much more intimate view of the inside of the store—in fact, he is for the moment, in the store itself and he is much more easily led to drop in to ask questions concerning something in which he is interested. From time to time, demonstrations are held in the front part of the store. With the open store front these have all the attention-compelling qualities of a sidewalk demonstration—and indicate their value by collecting crowds on the sidewalk outside and even in the store itself.

Most of all, Mr. Smith believes in advertising. His copy appears regularly in the local papers—and is, according to his records, responsible for the majority of new custom brought to his doors. This advertising is not based upon cut prices, although generally phrased to read as though a bargain were available for a limited time only. It is rather based upon a fair price and upon attractive time payment terms. An especially small initial payment or a special offer based upon payment within a given period form the basis for most of the bargains offered. Occasionally, of course, it is possible to pick up some article of stock for a very special price and then this is used as a leader to bring people to the store. As Mr. Smith says, people usually buy the better class of equipment when they come to consider the matter thoroughly and to look into all aspects of the question. Bargain offers bring them into the store—intelligent salesmanship afterwards sells them the standard equipment at the standard price.

And in the matter of time payment business, Mr. Smith is an advocate of the finance company as an assistance to the man who would carry on a large volume of business with a small capital. His own example is an indication of how such a business can grow in a short time. The burden, he is careful to point out, does not fall upon the finance company alone—but this very responsibility of the merchant in his own success is the best guarantee for his not failing. It would be a mistake to present a dealer with a large capital before he had earned it—he would not know how to use it wisely.

After all, the satisfied customer remains the best source of further business. Not only does he come back himself when he wishes something further in electrical equipment, but he sends his neighbor and his neighbor's neighbor. Good-will is a matter which advances in geometrical progression.

The COAST Outlet
ELECTRICAL CONSTRUCTIONISTS' and DEALERS' NEWS

Electrical Construction

By E. Earl Browne

THE lighting of many school buildings is far below the standards prevailing for commercial and industrial establishments. It is conservatively estimated that twenty-five per cent of all school children suffer from defective eyesight. The economic loss resulting from defective vision is not yet fully appreciated but it is coming to be recognized that this loss is of vital importance both to the individual and to the industrial welfare of the country.

One of the contributing factors to defective vision is the poor lighting of class rooms and it is frequently the case that even state laws are deficient in their requirements in this regard. Many cities are giving closer attention to the matter of illumination, both natural and artificial, but in the rural districts this subject has not generally received sufficient thought.

Artificial lighting is of prime importance and should be carefully planned out in advance of building. Where it has not been so planned steps should be taken by the proper authorities to see that modern and adequate lighting provisions are made.

The modern school is, when properly lighted, an economy, not an expense, for as in any industrial plant it increases the efficiency of the pupils. A foot-candle intensity of 10 on desks in class-rooms should be a fair average, except in laboratories and draughting rooms where discrimination of detail is essential.

In most buildings light outlets are spaced symmetrically but with school-rooms the shadows cast by head and hands are important and to eliminate these shadows as far as possible it is necessary to have the maximum light coming slightly forward and from the left, as per Fig. 1.

No lighting unit should come below a line extended from the eye of a student in the rear seat to a point 2 ft. above the blackboard. (See Fig. 2.)

Electric air heating of the school has as many advantages over any other form of heating as the electric light has over any other method of illumination. The first of course is the cleanliness; the second is the ease of control by thermostats in each class-room as the opening and closing of doors and windows, which subjects the pupils to serious drafts, is entirely unnecessary; the third is the difference in the original cost of the equipment which in schools is used but nine months or less per year, or 200 school days. If steam or hot water systems are installed they require attention in vacation periods to see that water levels are maintained and that all equipment is properly painted to prevent oxidation. The modern electric air heater, when placed as is usual under windows and therefore close to pupils sitting at the desks adjacent to them, is operated as a total convection heater, i.e., it is operated at a black heat instead of a red heat, as in the radiant type, thereby not subjecting the pupils to the excessive heat rays.

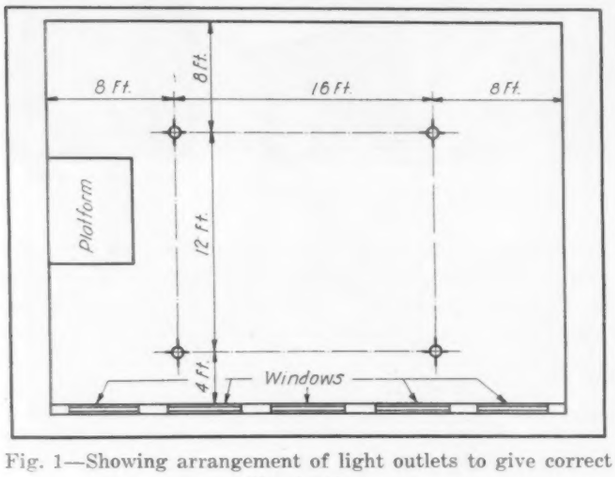


Fig. 1—Showing arrangement of light outlets to give correct illumination.

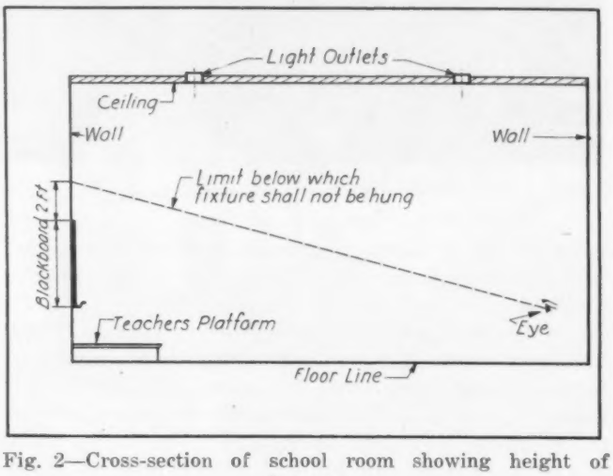


Fig. 2—Cross-section of school room showing height of fixtures.

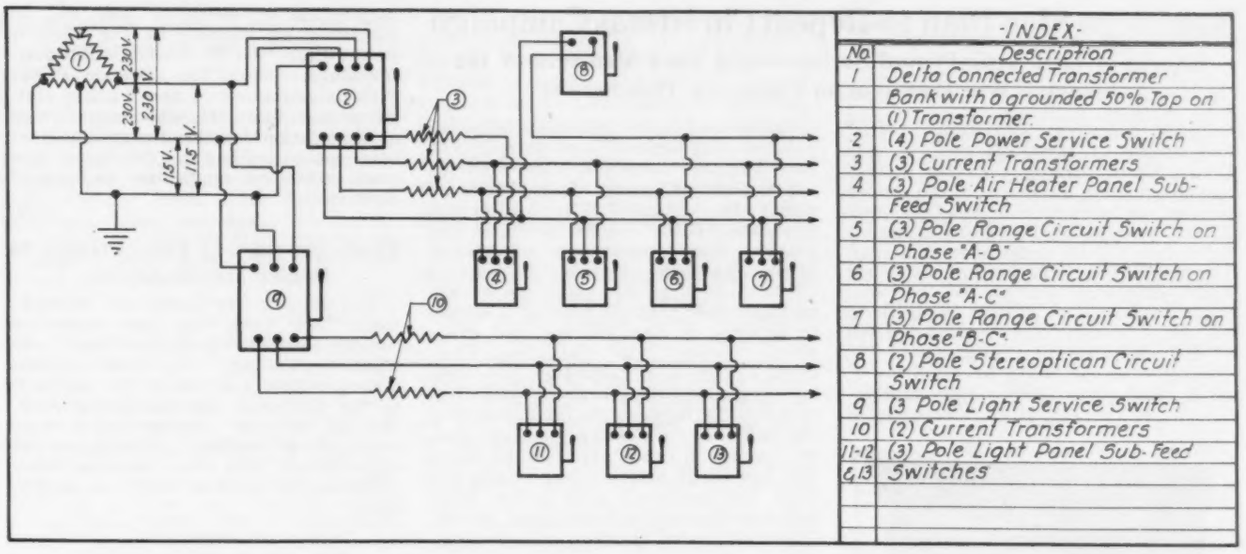

-INDEX-
No. Description
1 Delta Connected Transformer Bank with a grounded 50% Tap on (1) Transformer.
2 (4) Pole Power Service Switch
3 (3) Current Transformers
4 (3) Pole Air Heater Panel Sub-Feed Switch
5 (3) Pole Range Circuit Switch on Phase "A-B"
6 (3) Pole Range Circuit Switch on Phase "A-C"
7 (3) Pole Range Circuit Switch on Phase "B-C"
8 (2) Pole Stereoptican Circuit Switch
9 (3 Pole Light Service Switch
10 (2) Current Transformers
11-12 & 13 (3) Pole Light Panel Sub-Feed Switches
230V.
230
115V.
115

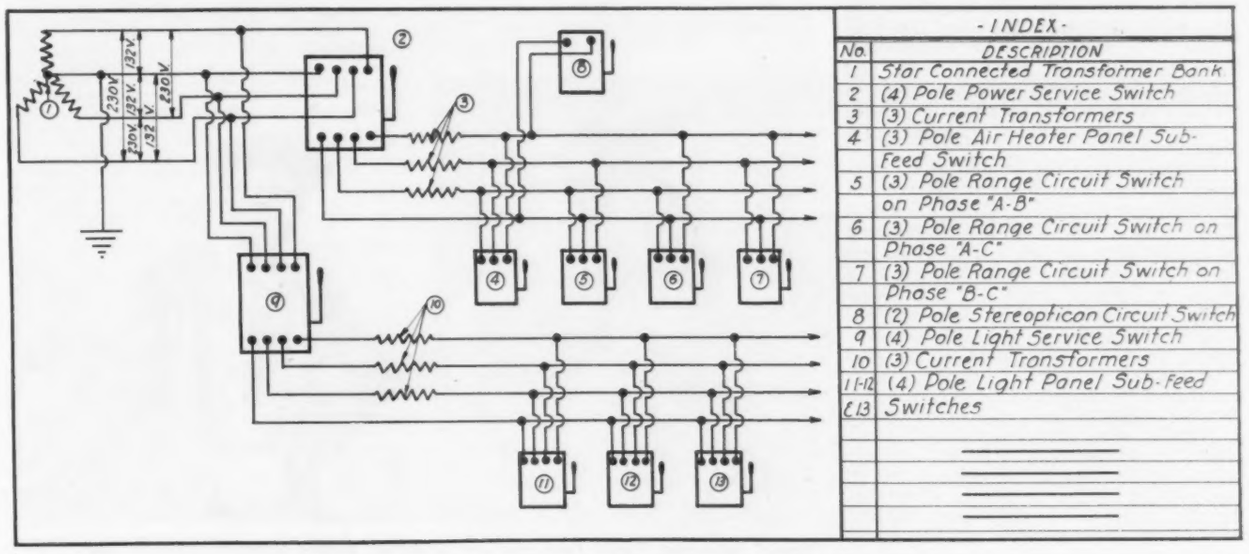
Fig. 3—Wiring diagram for delta connected transformer bank.

Electric air heating has the added advantage of being more flexible than any other system. For example, a room on the northerly side of the building may need heat at a time when a room on the westerly or southerly side would not. With a central heating system it would be necessary to run the plant to heat the single room;—with an electric heating system it is possible to turn on the heaters in the one room and provide comfort at moderate cost. This is of particular importance as teachers and principals often find it necessary to be at school at other than regular school hours and unless comfortable working conditions are provided they are not able to work efficiently.

The question of service metering and distribution is a matter which should be settled with the power company serving, as it is often an advantage to construct a transformer vault on the premises. As all air heating, ranges, motors and all apparatus classed as power would of necessity be on one meter in order to get advantage of the lowest possible rate, this would leave but the lighting on another meter, as per Figs. 3 and 4.

The disadvantage of the "star" connected transformers with grounded neutral, as per Fig. 3, is that all lamps, ranges, hot plates, etc., would have to be purchased for operation on a nominal voltage of 132. Also the lighting panel boards should have four wire buses to eliminate any chance of an unbalanced condition so far as possible. If, however, the 130-volt apparatus is a large percentage of the total connected load, it would be preferred by the power company, as one larger transformer for this three wire load, as per Fig. 4, would not be necessary.

In addition to the usual public telephone system connected to the principal's office it is essential to have a private telephone system between the classrooms and principal's office, together with a comprehensive system of program, assembly and fire alarm gongs, as well as an electric clock system.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9 (4) Pole Light Service Switch
10 (3) Current Transformers
11-12 & 13 (4) Pole Light Panel Sub-Feed Switches
230V.
132V.

Fig. 4—Wiring diagram for star connected transformer bank.

San Diego Men Plan to Repeat Christmas Campaign

Efforts of Last Year Proved So Successful That Members of the Industry Will Endeavor to Cooperate This Season

"Give Electrical Christmas Gifts," the slogan of electrical men of San Diego, Calif., during the last holiday season, proved so much of an "open sesame" to an unprecedented Christmas season, that in all likelihood a similar campaign will be undertaken this year. The magic that made for success in last year's campaign was the 100 per cent participation of all dealers in electrical materials, brought together and directed by the central station company.

Always an advocate of team work, A. E. Holloway, commercial superintendent of the San Diego Consolidated Gas & Electric Company, called the electrical men of the city together. In this conference was laid out the program to be followed. The central station contributed a starting fund, and each dealer contributed to it what he could. A total of over $1,000 was raised for the campaign advertising fund.

Billboards, similar to the one shown above, were used last year in the Christmas selling campaign.

The individual advertising of all electrical dealers was made to tie in with the campaign slogan, "Give Electrical Christmas Gifts." Beside this there were prepared enough large automobile banners to placard the entire central station's fleet of trucks and cars, besides doing the same for all electrical dealers' machines. Windshield stickers added to this advertising power, and the electrical men themselves wore large buttons imprinted with the slogan emblem.

Schools were visited and the children were given hundreds of small buttons of the same design to wear home to show their parents. Window display layouts were prepared for the dealers, and the Society for Electrical Development sticker stamps were used on all mailing matter. Store placards were prepared and large and small billboard posters were ordered and posted. The local theaters carried a slide with the big wreath of green holly inside of which the slogan, "Give Electrical Christmas Gifts" blazed forth in red letters. Special newspaper advertising of the idea then completed the job.

The San Diego campaign made such an impression that the news of it spread to dealers in Los Angeles and other cities. Through the California Electrical Cooperative Campaign and similar organizations northern electrical men made arrangements for duplicating the San Diego campaign publicity matter for use in other parts of the state. The San Diego printing house doing the work was swamped with orders from Los Angeles and northern cities for additional banners, stickers, and placards.

Electric Power Club Issues Motor Operating Instructions

Recognizing the fact that the life and successful operation of electric motors is dependent not only on proper design and construction but also on proper installation and operation, the Electric Power Club of Cleveland, Ohio, has issued a booklet entitled, "Instructions for the Installation, Operation and Care of Electric Motors and Generators."

This book contains detailed instructions for the proper installation and operation, as well as the care, of electric motors and generators and the subject matter is treated under the following heads:

General Installation
Method of Drive
Operation
Care and Maintenance

In addition to very useful and practical suggestions on installation and operation the book also contains a comprehensive list of standard definitions of terms used in connection with motor work. This book should be of value to every concern that engages in motor installation or operation and will be furnished on request to the Electric Power Club, 900 B. F. Keith Building, Cleveland, Ohio. The Electric Power Club is composed of the leading electrical manufacturers who have formed an association for the dissemination of information leading to the better and more intelligent application and use of electricity.

Electrical Society Issues Guide to Dealer Merchandising

The Society for Electrical Development, New York, has just issued a booklet entitled "Profitable Practices in Appliance Selling." This book contains a very helpful analysis of the approach to the Christmas merchandising problem as well as general suggestions which are of application throughout the entire year. The book contains many sub-divisions, some of which are as follows:

Analyze your market
Study your prospective competitors
Decide what appliances you will sell
Formulate your sales policy
Window and store displays

The book will be of value to every retailer of electrical merchandise and should be read with great care. The precepts involved are based on years of experience by successful merchandisers and have been compiled and presented for the benefit of the entire retail trade. Distribution of the book is handled from the headquarters of the society at 522 Fifth Avenue, New York City.

The Master Lighting Fixture Company, Seattle, Wash., has the contract for lighting fixtures in the new 10-story Dexter Horton Bank building now under construction.

The Reynolds Electric Company, Chicago, Ill., has published Bulletin No. 41, which gives general information on the maintenance and installation of flashers. The bulletin is designed to be of interest to executives, salesmen, superintendents and repairmen connected with the electric sign industry.

"Sandy" Sanderson, Pacific Coast manager of Bryant Electric Company, tried to tempt "Pete" Daley, sales manager of Majestic Electric Appliance Company, but Pete says that my lady Nicotine has no attractions for him.

Cooperative Sales Plan Evolved by Dealers and Utliity

Plans for joining in a cooperative effort to further the use and popularity of electricity for heating and cooking in the home, the apartment and on the farm were discussed at a get-together meeting of the electrical contractor-dealers in the Santa Clara Valley at a meeting held in San Jose, Calif., Oct. 16, 1923. The meeting was attended by a large delegation of San Francisco contractor-dealers.

Preliminary plans were discussed and a temporary organization perfected before the close of the meeting. During the course of the evening George Brouillet addressed the meeting on "Selling Cooking and Heating Load" while C. L. Chamblin spoke on "Selling the Job." C. B. Kenney discussed "Co-operation" and E. E. Browne spoke on "Wiring Standards and Wiring Methods." A. E. Rowe addressed the meeting on "Accomplishments of Association Work." Victor Le Moge, chairman of the State Association of Electrical Contractors and Dealers, told of the plans of that organization to secure 1,000 members during the next year and outlined the benefits to be derived from the use of the association trademark.

John D. Kuster, district manager of the Pacific Gas and Electric Company, and R. R. Robinson of the same company addressed the meeting and assured those present of the cooperation of the central station. Both expressed the hope that the dealers would make plans for joining the drive for a greater use of electricity in the home and on the farm.

The meeting was attended by 14 contractor-dealers from San Jose and other cities in the valley. Before adjournment a temporary organization was effected with Fred Doerr of the Garden City Electric Company, chairman and R. R. Robinson of the Pacific Gas and Electric Company, secretary. Another meeting of the group has been called for the near future when definite plans for accomplishing the program outlined will be arranged.

Included among those from San Francisco who attended the meeting were:

J. W. Redpath, secretary, State Association of Electrical Contractors and Dealers.
C. B. Kenney, Ne Page-McKenny Company.
E. E. Browne, Browne-Langlais Company.
C. L. Chamblin, California Electrical Construction Company.
A. E. Rowe, Garnett Young & Company.
Carl Severin, Severin Electric Company.
Arthur Elkin, secretary, San Francisco Electrical Contractor-Dealers' Association.
Victor Le Moge, Victor Le Moge Company, and chairman, State Association of Electrical Contractors and Dealers.
George Brouillet, F. J. Klimm Company.
Norman Nelson, Enterprise Electric Works.
W. R. Mobley, American Electrical Engineering Company.
O. E. Sholders, Pacific Gas and Electric Company.
Walter Price, California Electrical Cooperative Campaign.
George Smith, Smith Electric Company.
H. C. Reid, H. C. Reid & Company.
Edward Martin, Sterling Electric Company.

The Almvig Electric Company, located at 2810½ Colby Avenue, Everett, Wash., recently opened a new "Torrington Shop" at that address.

A. H. Springer has recently opened a new store at 8937 Santa Monica Boulevard, Sherman, Calif. He will do a general electrical contracting and supply business.

F. W. Rust & Company, Inc., electrical contractors, 218 Columbia Street, Seattle, Wash., have removed from that location to larger and better equipped quarters in the new Campbell building, under construction on the corner of Fourth Avenue and Columbia Street. F. W. Rust, manager, was formerly part owner in the Rainier Electric Company and at one time was connected with the Cascade Fixture Company.

Attractive Merchandise Display Assists in Selling

Too many dealers have overlooked the importance of attractive display of their merchandise. It has long been a familiar sight in electrical stores to see coils of wire, piles of conduit and boxes of tools and fittings piled on the floor or stacked against the wall. No lady likes to enter such a store and many men object to the untidy appearance presented by carelessly thrown construction material. This has beyond doubt been partly responsible for the development of other channels of distribution for electrical merchandise than the electrical dealer. It is, therefore, pleasing to note that some dealers have taken cognizance of the fact that in order to attract trade to their stores they must make those stores appeal to the eye and that to so appeal neatness must be the first principle observed.

One of the most pleasingly arranged stores in central California is that of the Abbott Electric Company, Hanford, Calif. Mr. Abbott has so arranged his stock that it is all readily visible to those who enter the store and, furthermore, it is so placed that any article in which a prospect is interested may be inspected and demonstrated if desired. The stock is all neatly and orderly arranged and the aisles are free from obstructions. There are no evidences of dirt or litter to detract from the value of the appliances and to repel those who enter. The interior woodwork is neatly finished and harmonizes with the decorations while framed copies of national advertising blend in with the general display scheme. Dealers everywhere may well afford to give more thought to the matter of better store arrangement and merchandise display as it has been proved that in no other way may sales assistance be better derived.

Making Display Booths at Fairs Pay in Sales Return

Many exhibitors of electrical appliances at fairs and other similar occasions have, in the past, been in the habit of displaying as many different lines of merchandise as possible. This has resulted, not in sales, but merely in arousing the curiosity of the visitors who instead of buying became confused by the array of new devices.

Concentration of effort on the sale of a limited variety of electrical merchandise brought decided success to one San Diego, Calif., electrical firm in the recent Farm Bureau county fair held in that city in Balboa park, during September. Four San Diego firms had booths at the fair, the Jennings Electric Company, the Edwards Electric Company, the Independent Electric Company, and the Southern Electric Company, which firm had three booths.

"We always go in for these fairs intensively," said Carl Heilbron, general manager of the latter concern. "We try more to promote prospects than to do anything else. We do not shoot in the air by getting together a lot of electrical goods so that the visitors merely go through the booth to see what the latest thing is. We have found that concentration of one booth to the display and sale of one article pays best. There were enough sales made from the Hoover sweeper booth alone to justify the cost of the exhibit, aside from the list of prospects it gave us."

This concern had one booth devoted to the Hoover sweeper, another to the Eureka sweeper, and one to the Maytag washer and Westinghouse-Free sewing machine. Another feature which aided in the program was that a "Dollar Down Sale" was run in connection with the Fair week. Acceptance of a dollar as the initial payment on household electrical apparatus proved a great selling factor.

W. H. Lewis and **A. B. Streeter** have opened a new electrical contracting and supply store in Arcadia, Calif., under the name of The Independent Electric Company. The new company starts in with the contract for wiring and fixtures for 87 houses being erected by the McNulty Company in the new town of Temple, Calif.

The attractively arranged store of the Abbott Electric Company, Hanford, Calif., offers a splendid example for the display of electrical merchandise.

JOBBER, DEALER AND SALES AGENT

Will You Get Your Share of the Christmas Trade?

Window Displays, Advertising Campaigns, Cooperative Movements Aid Dealers in Selling Electrical Christmas Gifts

To the small boy the coming of Christmas means the arrival of numerous toys and to his mother and father it means the purchasing of these toys from some merchandiser who handles the articles that the boy desires. The housewife looks forward to Christmas with the feeling that she may be lucky and receive some gifts which will make her work easier and her home more livable.

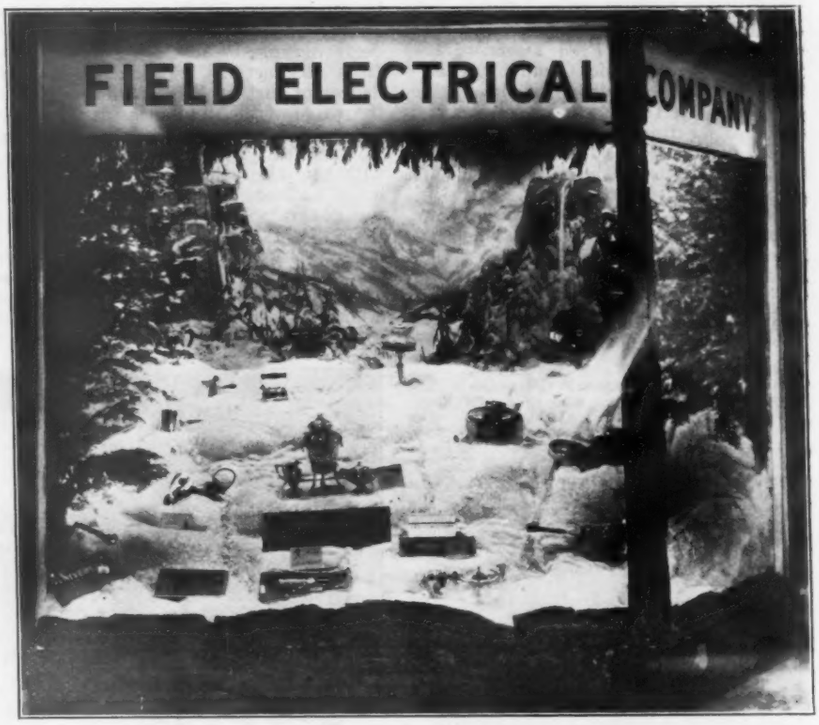
To the electrical dealer this all means more business, provided he makes the necessary preparations to attract the trade to his store. From the electric toy to the automatic electric range the dealer can supply the demands of his customers. With a well thought out advertising campaign backed up by an attractive series of window displays and a well designed store interior, there is no reason why a large volume of Christmas business cannot be obtained.

The Christmas buying season has meant much more to the electrical dealer during the past few years than it ever did before. One of the reasons for this is that cooperative organizations of men engaged in the electrical industry have been exceedingly active in their efforts to increase the sales of electrical appliances. For a considerable number of years, the Society for Electrical Development, Inc., has been preparing literature and sales helps which no doubt have done much to place the advantages of electrical appliances as Christmas gifts, before the eyes of the buying public and at the same time, local cooperative organizations have aided immensely in the campaigns to develop the desire to present electrical Christmas gifts.

The activities of electrical dealers themselves, must of course, not be discounted, as these men have through consistent advertising increased their Christmas business by a large amount. Cooperative advertising campaigns, slogans, and the countless other sales producing mediums would be of no avail, if the individual dealers did not follow this work up with personal solicitation of their trade.

Christmas offers to the electrical dealer an excellent opportunity to engage in an intensive sales campaign. The desire to buy is placed in the mind of the public by the tradition that everyone gives to his friends on Christmas Day. Thus the first step in the making of the sale is made for all merchandisers. The next step, that of making the desire to purchase a particular merchandiser's product, must of course be made by the dealer. The individual through his own sales effort is responsible for completing the transaction with the customer.

Many sales producing mediums have been used by electrical dealers in their efforts to increase the sale of electrical products during the Christmas buying season and a number of these have been found to be exceedingly successful. Window displays have of course been one of the most important adjuncts to the work of the salesmen in the store. These "silent salesmen" have been largely responsible for many of the sales that have been made by electrical dealers in the past and no doubt they will continue to serve the merchant well. Displays which are pleasing to the eye have an excellent sales appeal and will do much to draw the pedestrian into the store where the salesman may show the prospect the advantages of the electrical Christmas gift. Time spent in preparing these feature displays will be productive in proportion to the appeal that is made to the pedestrian on the street. The novel window will attract more attention than will the ordinary one to which the merchant has given no particular thought. If the dealer will spend a considerable amount of time in designing his Christmas display, his profits from appliances sold will be much larger than if he made no particular effort to attract trade to his establishment. On pages 344 and 345 of this issue there are examples of window displays that met the dealers' requirements admirably. Prospects were drawn into the dealers' stores and sales



Three hundred and sixty-seven people stopped to look at this window display in one hour. The sales record also showed a decided increase in business over that of previous Christmas seasons.

"Give Something Electrical"

were made to these people who were attracted by the window displays.

A Feature Window Display

In some cases dealers have found it to their advantage to go into the development of feature window displays involving considerable thought and construction work. The Field Electrical Company of San Bernardino, Calif., is one of these. George S. Black, the window decorator for the concern, spent several weeks in preparing the window which proved its worth in the Christmas buying season last year. The window owed its pulling power not only to its novelty, for it was a snow scene and San Bernardino residents were not accustomed to seeing snow, but also to the effective presentation of the electrical appliances.

The window showed a snow scene in the mountains and by means of different lighting effects, was made to represent the scene at three different times of the day. The accompanying photograph gives an idea as to how the window appeared to the public. The side lines of the display were composed of young spruce trees which were secured especially for the display from Arrowhead Woods. These trees were so arranged as to give the effect of a dense forest on each side of the main display. In the rear of the display a small waterfall was visible. This seemed to be falling over a cliff which was covered with snow and ice. From the base of the waterfall, down and across the display, a mountain stream flowed. Copious amounts of white cotton and powdered isinglass were placed around the entire display in order that the wintry effect might be carried out still further. A drawing of a cross-section of the window is shown in Fig. 1.

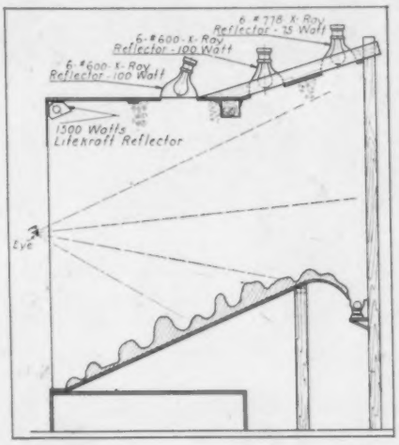

6-#778 X-Ray Reflector - 75 Watt
6-#600 X-Ray Reflector - 100 Watt
6-#600 X-Ray Reflector - 100 Watt
1500 Watts Litekraft Reflector
Eye

Fig. 1—Showing cross-section of the Christmas display window of the Field Electrical Company.

The lighting effects used on the display were particularly good. The first scene was a sunset on the mountains, secured by means of colored spot lights being directed against the mountain peaks that appeared in the background. This scene gave way to the second one which showed the display under a moonlight effect. The cold light of the moon, which was produced by a spot light scintillated on the snow and water below. Hundreds of tiny pieces of tinfoil were placed in the trees and these gave the trees the appearance of being covered with ice. During the night scene, the moon rose above the mountains casting its cold rays on the objects below.

A snow storm produced by light constituted the third scene. This effect was accomplished by rotating a perforated drum around the light source. The drum was concealed in the foliage above the display. The effect was similar to that produced by a sciopticon and required many evenings of experimenting, on the part of the window trimmer, to get the desired effect. A specially designed flasher mechanism was used to control the effects, the entire changing from one scene to another being done automatically at regular intervals.

A complete list of the smaller electrical appliances was presented in these surroundings, the three effects and the general display being used only to attract the attention of the passer-by. As the center of the window was arranged to represent snow banks, excellent space was provided for the displaying of the appliances. The bright nickel finish of the appliances that were displayed stood out particularly well against the white background. To carry the message of giving electrical presents, small cards were attached to each article suggesting that particular piece as being a suitable gift for some member of the family.

Other Sales Producing Mediums

Window displays, despite the fact that they act as a welcoming hand to the prospective customer, are not the only mediums which can be used to increase business in the Christmas season. Newspaper advertising if well directed will prove to be one of the most effective sales producing factors that can be employed by the electrical dealer. Money spent in this direction provides for the placing of the suggestion to buy electrical gifts, before the eyes of thousands of readers and is no doubt responsible for a large part of the trade that is conducted each year. Examples of what electrical dealers have done to increase their Christmas sales by means of newspaper advertising are presented on page 346.

During the 1922 Christmas selling campaign in Denver the Electrical Cooperative League of that city fostered a scheme which proved to be quite effective in producing sales. By arrangement with dealer members of the League, electrical merchandise certificates, entitling the holder to secure any amount of electrical devices from dealer members of the Electrical Cooperative League, were sold by all members of the League. These certificates could be purchased in any amount and aided the Christmas shopper considerably, particularly when he did not know exactly what the needs of his friends were. Needless to say, the idea added considerably to the gross retail business that was conducted in Denver.

The advertising of these certificates was done in a cooperative way, dealers joining to pay for advertising space used in notifying the public of the gift coupons. The League also spent a small amount of money in advertising the certificates. The merchandising of the certificates was done by each dealer separately and the wording that was printed on the coupons stated that they were redeemable by the recipient at the store from which they had been sold. In addition to directly advertising the certificates, dealers that had them for sale noted this fact at the bottom of all of their display copy used in connection with Christmas.

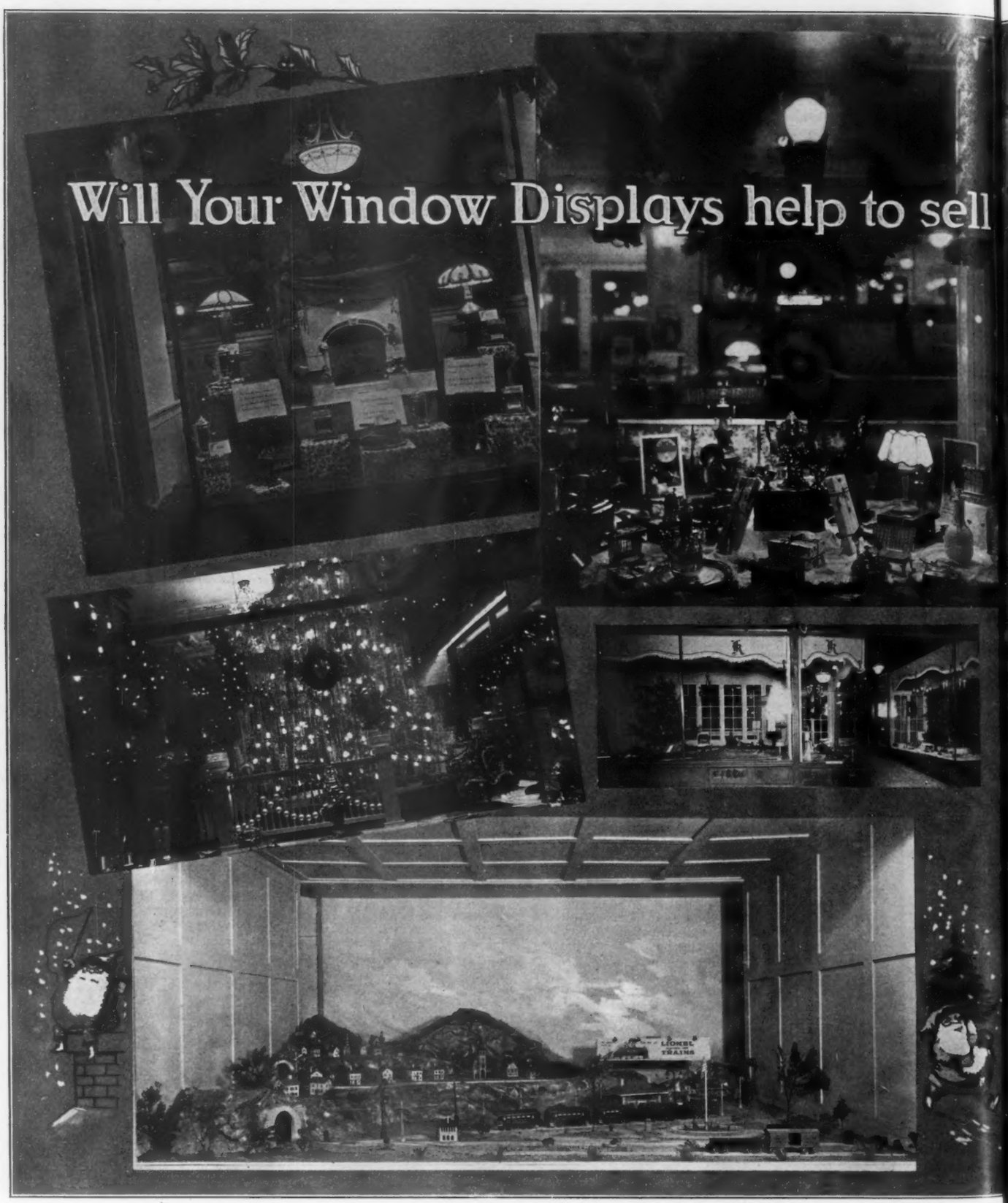
Newspaper advertising is acknowledged to be one of the most effective sales producing agents that is being used in present day merchandising. There are, however, several other forms of advertising which are excellent aids to the electrical dealer during the Christmas season. The Society for Electrical Development, Inc., has during the past few years, prepared a number of these sales helps which have for the most part appeared in the form of booklets designed to be sent to prospective customers. This year the Society has prepared for the trade a Christmas gift suggestion folder with a distinctive and attractive cover depicting an army of the Santa Claus tribe carrying various appliances. The booklet is to contain eight pages and will be ornamented with red poinsettia decorations. The text will explain, in pointed paragraphs, the suitability of the various electrical appliances for Christmas gifts. In addition to this booklet, the Society has prepared a four-color Christmas wreath which is suitable for pasting on windows or for standing on the floor of the display window. There will also be a set of Christmas Santa Claus cut-outs which show the familiar figure pointing in various positions. These little figures, standing twelve inches high, work in admirably with window displays of small appliances. A poster stamp in four colors will also be distributed by the Society to members and non-members at a reasonable cost.

Buy Your Xmas Appliances
From Us
WE HANDLE IRONS, PERCOLATORS, TOASTERS WAFFLE IRONS, CURLING IRONS, HEATERS AND EVERYTHING ELECTRICAL.
Xmas Tree Outfits and Extra Lamps
We Test Your Tree Outfits Free

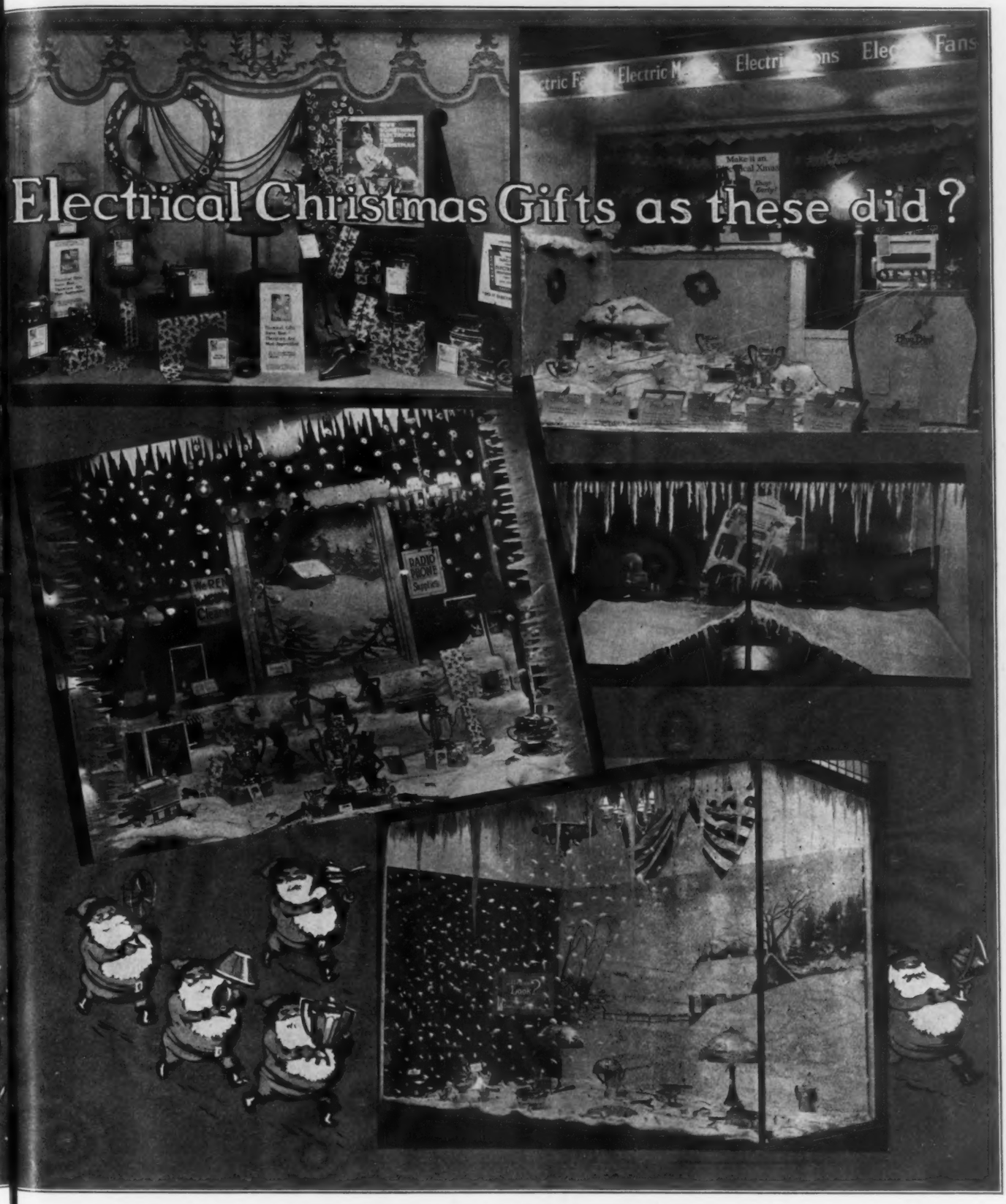
Stickers attached to bills and letterheads will carry the electrify message to customers.

The Direct-by-Mail Appeal

Individual dealers have also often found that the booklets prepared by manufacturers are of aid in increasing the Christmas business. These booklets, when carrying the dealer's imprint, stating where the appliances may be purchased, are always kindly received by the public because of the fact that they give a number of suggestions as to what gifts are appropriate at Christmas time.



"Give Something Electrical"



"Give Something Electrical"

The advertisements reproduced above proved to be potent factors in the developing of large Christmas sales of electrical appliances.

"Give Something Electrical"

The direct-by-mail appeal has also been found to be effective in other ways. The retail appliance department of a western central station company in one of its campaigns to increase the sale of electrical appliances as Christmas gifts, started the sales creating work about the middle of October and continued to follow-up the original material until a few days before Christmas. The first thing that was sent was a letter addressed to "Dear Madam." A two-color letterhead was used and a Christmas morning scene was reproduced on one corner of the sheet. Down the left hand side of the paper there appeared a list of electrical appliances which were suggested as being suitable Christmas gifts. The letter was sent to all residential customers of the power company. The body of the letter read as follows:

Dear Madam:

We know you're busy. It's in the air. There's so much to be done in every little 24 hours' round that unless you have all the modern labor savers, the atmosphere just naturally gets stirred up and whirly.

That's why we've made a big effort to hurry ahead a bit and help you plan for the busiest time of all—Christmas.

Christmas is wonderfully happy and joyous, but every minute is so crowded that sometimes—well, it becomes a little "too much," doesn't it?

And so we're suggesting that you take time "firmly by the forelock" and start thinking Christmas—now.

In selecting gifts it has doubtless occurred to you that your family and friends—like you—are tremendously busy. Why not give them something to lighten the load—to set them free for friendly times?

You'll find electrical appliances the most welcome of all Christmas gifts. Inexpensive to buy and economical to operate, they express your thoughtfulness by years of fine, capable service.

And there's such a wonderful range of selection! Come in and let us show you the variety of beautiful, durable, electrical helpers.

Sincerely yours,

Following this letter various pieces of literature were sent to those on the list. Another power company used stickers attached to the monthly electric bills to call attention to the fact that electrical appliances could be purchased from it.

Development of a large and profitable business during the next two months is possible if the individual dealers will work in conjunction with the cooperative organizations and if they will exert themselves in soliciting business among their local prospects. A judicious use of advertising space, direct-by-mail literature, and window displays will draw customers to the store. A well arranged store room where courteous salesmen are in attendance to demonstrate the appliances to customers will in most cases complete the sale that the dealer wishes to make.

AN OPEN LETTER TO SANTA CLAUS

By JOE OSIER

Comes the time when the modern housewife, with advanced ideas, breaks the chains which bind her to the kitchen sink—

Settles down in a quiet corner and writes a letter to Santa Claus, telling that fine and fat old man what she would like to have in her Holeproof hose on the morning of December 25th.

And, if she is smart—and we will all concede she is—she will write:

My Dear Mister Claus:

Since the day that I took the vows—agreeing to love, honor and "yes" on all occasions; beginning with the time I swapped sweet girlhood for wifehood, with its attendant cares and boiled dinners and phoney excuses, I have washed millions of cracked cups by hand, made toast in the primitive way, concocted coffee in unsanitary containers and worn my radiant ringlets in kid curlers.

But now, mine eyes have ope'd. I see a way out. The clanking chains which have bound me can be unloosed and I can be as free as the lunch which adorned the mahogany in pre-Volstead days. Man's genius and electricity have liberated me. The gates of my goal swing wide and I stand blinking in the sunshine.

I see no reason why I should be enslaved further. The vacuum cleaner, the electric washers—(dish and clothes)—the flatwork ironer, the electric curler—all are ready and willing to align themselves on the battlefront in my defense. Therefore, I am sounding the tocsin and I shall keep on sounding it until the call is heard by every electrical dealer and harassed husband in the Universe.

I know that you will be the most powerful ally associated with the movement I am starting; therefore, I beseech you, accouter yourself for the fray. Make ready! Be ready!

And on December 25th, this year, sow broadcast the seeds of discontent in the bosom of every wife; seeds that will grow and bloom and blossom and that cannot be harvested until the electrical needs of every housewife are satisfied.

As for myself, dear Kringle, seeing that I am willing to lead the charge and worry about the installments, fill my seamless sock with everything from a convenience outlet to an electric runabout.

Oh, Captain! My Captain! do not fail me, lest I and other weak sisters be choked on burnt toast, strangled on poor coffee and sunk under a stack of dirty dishes.

You are our Liberator. Commence to liberate.

Yours choked with dust,

Harriet Harried Housewife.

"Give Something Electrical"

INDUSTRIAL NEWS

Charles G. DuBois Discusses Municipal Ownership

Western Electric President Says Engineering and Commercial Aspects Are Stumbling Blocks of Government Projects

That the American people are opposed to government control and operation of business of any character is the belief expressed by Charles D. DuBois, president of the Western Electric Company, in an interview during his recent visit to San Francisco. Mr. DuBois is making an inspection trip of branch offices of the Western Electric Company and visited Denver, San Francisco and Los Angeles while in the West. This is the first time in five years that he has been to the Pacific Coast.

In discussing municipal ownership, Mr. DuBois said:

"The majority of ventures in both municipal and government ownership of public utilities have been both costly and unsuccessful. Municipal control of water works and such simple utilities seems to be sound but as a utility becomes more complicated, more technical and more involved, municipal ownership is inadequate. Certainly no business is more complicated and technical than the electric power business. One reason for the seeming failure of municipal enterprises of this character is the inability of these agencies to pay for the proper technical advice and skill necessary for their operation. They may pay at the start but as the operation proceeds, politics creep in and disruption follows. The engineering and commercial aspects of the electric utility business are the greatest stumbling blocks in the path of successful public operation.

"I have only one suggestion to make to the utilities. Give the best and most efficient service at the lowest possible rate which will yield a fair return on your investment. When you are sure that this is being done, tell them about it. By that I do not mean to make a lot of frothy high sounding statements. Buy advertising space in the newspapers and give the people plain, straightforward facts about you and your business. The American people are primarily honest and sportsmanlike. Appeal to this inherent sportsmanship. Do your job in the best possible manner, show them that you are doing it, and they will let you alone.

"The attitude of the public toward the telephone companies at the present time is a fair example of what I mean. All thought of government ownership of these utilities is dead. Why? Because we have always rendered the best possible service as cheaply as possible and have consistently told the people about what we were doing. The public would frown at any attempt to place the telephone companies under government control at the present time as the result of the steps which we have taken."

Mr. DuBois began his career with the Western Electric Company in 1891 when he went on the payroll at $10 a week. Subsequently he became chief clerk of the New York office and secretary of the company. He became comptroller of the American Telephone & Telegraph Company in 1907. During the war he was comptroller of the American Red Cross. In October, 1918, he returned to the Western Electric Company as vice-president in charge of administration and in June, 1919, he was made president of the company.

Charles G. DuBois, president of the Western Electric Company.

He is accompanied on his western trip by F. B. Gleason, general telephone sales manager. Mr. Gleason was manager of the San Francisco office of the company from 1909 to 1913, later taking charge of the company's operations at Tokyo.

The City Council of Los Angeles, Calif., has recently voted to authorize the expenditure of $25,000 to be used in securing a valuation of the electrical distribution system of the Los Angeles Gas & Electric Corporation in that city. The California State Railroad Commission has started making the survey to prepare the valuation of the distribution system. The company serves approximately one-third of the users of light and power within the city.

Hetch Hetchy Committee Makes Recommendation to City

That the City of San Francisco should petition the California Railroad Commission to prepare a valuation of selected portions of the distributing systems of the Pacific Gas and Electric Company and of the Great Western Power Company within the city is the recommendation presented to the San Francisco Board of Supervisors by the Citizens' Advisory Committee on Hetch Hetchy power. The committee does not at the present time recommend the purchase of either of the systems, but it does feel that a valuation should be made at the present time.

The committee announced that the city will have a power house generating 70,000 kw. by Jan. 1, 1925 and that the city would also have a transmission line leading into San Francisco by that time. The recommendation was made that the city refrain from entering into any contracts for the distribution of the power by any private corporation.

At a meeting of the Board of Supervisors it was unanimously agreed that the city attorney should draw up the necessary legislation which would call upon the Railroad Commission to make the valuations suggested by the Advisory Committee.

Wenatchee Transmission Line Is Put in Service Oct. 14

On Oct. 14, the Wenatchee transmission line, constructed between the White River Power Station of the Puget Sound Power & Light Company and the Columbia River Valley, a total length of 120 miles, was placed in service. The construction of this line was begun in July last year and the first 100 miles was placed in service in May this year, but the installation of the new transformers at the White River plant, together with the addition to the station, were not completed until last week, so that the entire Wenatchee line had not previously been placed in service. The line, as well as the addition to the plant, were constructed by the construction division of Stone & Webster, Inc.

The company has recently begun the construction of two 110-kv. outdoor substations at CleElum and Wenatchee, Wash., which will complete the entire high tension distribution system in connection with the Wenatchee line.

Purdue University, Lafayette, Ind., has recently published Bulletin No. 14 which presents matter entitled "Tables of Transmission Line Constants." The booklet was prepared by D. D. Ewing, professor of electric railway engineering at Purdue University.

Charles P. Steinmetz Succumbs to Chronic Myocarditis

Charles Proteus Steinmetz, chief consulting engineer of the General Electric Company, died in Schenectady, N. Y., about 8 a.m. on Oct. 26, of chronic myocarditis. He had been ill some days following his return from the Pacific Coast, but death came suddenly. Dr. Steinmetz was born in Breslau, Germany, on April 9, 1865, and was the son of Carl Heinrich and Caroline Neubert Steinmetz. He received his education at the Breslau Gymnasium (High School) and at the University of Breslau.

He became involved in social democratic agitation and left for Switzerland in 1888, where he studied at the Polytechnisum. From there he emigrated to the United States in 1889 and obtained a position with the Osterhold & Eickemeyer Manufacturing Company as draftsman, later being promoted to the position of electrical engineer and designer and finally was assigned to research work in charge of the Eickemeyer laboratory.

On absorption of the Eickemeyer-Field interest by the General Electric Company he joined the latter concern and was attached to the calculating department at Lynn, Mass. He was transferred to Schenectady in 1894 where he took charge of the calculation and design of the company's apparatus and also engaged in research and development work. About 1910 he organized the consulting engineering department of the General Electric Company.

For a number of years he was professor of electrical engineering at Union College and at the time of his death was professor of electro-physics there. He was also retaining the position of chief consulting engineer with the General Electric Company. The honorary degree of master of arts was conferred on him by Harvard in 1902 and he was made a doctor of philosophy by Union College in 1903. Dr. Steinmetz was a past president of the National Association of Corporation Schools, of the American Institute of Electrical Engineers and of the Illuminating Engineering Society. He held the office of vice-president of the International Association of Municipal Electricians and was an honorary member of the National Electric Light Association and a fellow of the American Association for the Advancement of Science. He was a member of the British Institution of Electrical Engineers, the American Mathematical Society, the Quaternion Society, the Society of Mechanical Engineers, the Electrochemical Society, the Physical Society, etc. He was president of the Common Council of the City of Schenectady some years ago and was twice president of the board of education.

Dr. Steinmetz was known as the author of numerous articles and ten or more books on electrical, mathematical and engineering subjects, etc., which are accepted as text books in colleges, laboratories and workshops. He regarded as his most important contributions to science "The Investigation of Magnetism" which deals with the law of hysteresis; "The Development of Symbolic Method of Alternating Current Calculations"; and "The General Theory of Electrical Transients."

The noted electrical engineer never married and is survived by a half-sister living in New York and by an adopted son, J. L. R. Hayden, and the latter's family who lived at the Steinmetz home. The funeral was held Oct. 29. Honorary pall bearers included General Electric Company officials, while the actual bearers were his co-workers in the laboratory. Dr. Steinmetz was buried at Schenectady.

Los Angeles Citizens May Drink Colorado River Water

To determine the feasibility of bringing water from the Colorado River to supplement the city water supply of Los Angeles, Calif., surveying parties have been put in the field. The survey is being made under the direction of William Mulholland, chief engineer of the Los Angeles Bureau of Water Works and Supply. The Board of Public Service Commissioners of Los Angeles directed Mr. Mulholland to conduct the survey.

The possibilities of the Colorado River as a source of water for Los Angeles were suggested by Mr. Mulholland after an inspection trip which he made recently. The engineer has announced that the city's present water supply will, at the present per capita rate of consumption, supply a city of 2,000,000 people. It is held that the influx of manufacturing interests will change the rate of consumption.

The city has not yet obtained a government grant to divert water from the Colorado River. The length of the pipe line that would be necessary is approximately three hundred miles.

Small Projects Are Subjects of Water Applications

The Department of Public Works of the State of California through the Division of Water Rights has, during the month of September, received only two applications for permits that involve power projects of any size. Thomas A. Clarke, of San Francisco, has made application for a permit to appropriate 25 sec.-ft. of water from the South Fork of the Merced River in Mariposa County. The applicant proposes to use the water in the development of hydroelectric power to be used in the operation of the Little Wonder Mines. The estimated cost of the development is $25,000.

The Mt. Shasta Power Corporation with head offices in San Francisco, has filed an application for the right to appropriate 25 sec.-ft. of water from Rock Creek in Shasta County. The estimated cost of the power development that is planned is $15,000.

Although twenty-six permits to appropriate water in California were granted by the Division of Water Rights, there were none for power projects of any size. All of the permits covered small applications.

The National Electric Light Association has recently published the report of the subcommittee on ventilation of the electrical apparatus committee. The publication is entitled "Ventilation of Central Station Buildings and Equipment." The booklet contains 46 pages and is well illustrated.

Conference Discusses Northeast Superpower Project

A conference, attended by the chairmen of the public service commissions of the ten states most interested, was held in New York on Oct. 13. The conference was called by Herbert Hoover, Secretary of Commerce, and was held with the approval of President Coolidge. The purpose of the meeting was to engage in a preliminary discussion as to the steps that might be taken by federal and state authorities in the promotion of superpower development in the Northeastern States.

Mr. Hoover in opening the conference stated that the interconnection of the electrical generating units in the ten states was advisory and essential and that toward this end state boundaries should be disregarded in the interconnection of the power systems. He stated that with a satisfactory superpower system, the cheaper sources of hydroelectric power as well as steam generated power could be made available through the use of long distance transmission lines. The point that more economical distribution of power could be effected was also brought out.

E. G. Buckland, vice-president of the New York, New Haven & Hartford Railroad, advised the conference concerning the legal aspects of the interconnecting of the power systems. Mr. Buckland, who was a member of the advisory board of the Superpower Survey made in 1921, stated that steps should be taken to remove legal inhibitions on the exchange of power over state lines. It was his opinion that such action was only necessary in those states which had prohibitory legislation and that in others no permissive law was necessary. He favored the plan to have the states provide for the exchange of power instead of the adoption by the federal government of legislation which would legalize the exchange.

During the conference each of the chairmen of the public service commissions was called on and in every case, these men indorsed the plan. All of the men expressed the view that the project could be brought to a satisfactory conclusion and pledged their support to Secretary Hoover's plan.

Power Costs to Be Defined for Denver Manufacturers

A report is in preparation at Denver at the direction of the local Civic and Commercial Association defining power costs for the benefit of manufacturing interests and designed to show how various classes of rates may be utilized.

V. L. Board, general superintendent of the Public Service Company of Colorado, was appointed a member of the special committee now compiling the report, which, when approved, is to be given general distribution by the Denver central station. Misunderstandings of rates and conditions and the failure of manufacturers to make proper arrangements for the use of power, were given as the reasons for the appointment of this special committee by the Civic and Commercial Association.

It is the opinion of the committee that Denver is under no disadvantage as to power rates in comparison with other cities and in fact has advantages over many.

Transmission Line Over Sierra Nevadas Completed

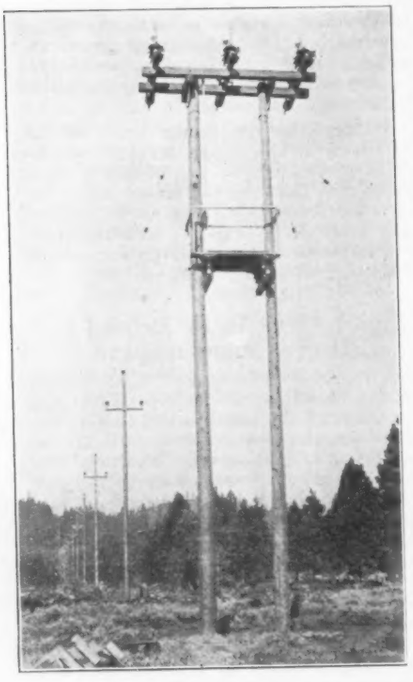
Truckee River Power Company Connected With Pacific Gas and Electric Company System by Summit-Washoe Line

A 60,000-volt transmission line of considerable importance to the future development of California and Nevada was recently completed by Stone & Webster, Inc., for the Truckee River Power Company. This line has the distinction of being at one of the highest altitudes in the state and is constructed down the Truckee River to the Washoe plant of the Truckee River Power Company, where it is tied into the company's distribution system.

The capacity of this line is 7,500 kva. and it is estimated that this will amply supply the needs of the Reno and Virginia City districts for some time to

The rugged character of the country over which the Summit-Washoe transmission line was built is plainly shown by this illustration.

to withstand the heavy storms that prevail during the winter season at the summit of the Sierra. The line ties to the Pacific Gas and Electric system near Summit Station along the line of the Southern Pacific Railway. It ex-



Pole-top switch and section of line on the Summit-Washoe transmission line which was recently completed.

tends over the Sierra Divide at an elevation of 7,300 ft., skirting the range above Donner Lake till it reaches the Truckee Canyon. The line then goes

come. Owing to the distance between the power station at Lake Spaulding and the point of distribution in Nevada, there is a considerable drop in voltage which will be taken care of by an automatic voltage regulator to be installed at the Washoe plant. The distance between Lake Spaulding and Washoe is 50 miles, but the current is carried still farther into the mining district south of Reno and it will therefore be necessary to have a potential of 63,000 volts at Washoe to compensate for the additional line drop between Washoe and Virginia City.

The conductor for this line is of No. 2 stranded copper wire supported on 70,000-volt pin type insulators. Angles up to 5 deg. are turned on the standard tower, while angles between 5 deg. and 15 deg. are turned on a "D" type or dead-end type tower. Between 15 deg. and 30 deg., a single string of suspension insulators is supported directly by the poles, the conductor being fastened by ordinary suspension cable clamps. In making angles over 30 deg. two suspension strings of insulators are used, one holding each span of the conductor. Both these latter types of towers are common to most line construction on the Pacific Coast.

The spans at the higher altitudes are 150 ft. while at the lower altitudes, this is lengthened to 200 ft. The poles are Class A red cedar, 45 ft. long.

Owing to the fact that several other make very careful surveys for the location of the line and thus avoid serious parallels with such utilities. The right-of-way for the line was cleared for a width of 25 ft., but all dangerous trees, whether live or dead timber, were felled. The line will be particularly difficult to patrol during the heavy snow periods and it was thought best to take every reasonable precaution against failure during a severe storm.

California Coast Cities Favored by New Electric Rates

Bringing the electric light and power rates charged by the Coast Valleys Gas & Electric Company and by the Coast Counties Gas & Electric Company into line, new schedules of rates have been made for both companies by the California State Railroad Commission. The new schedules will replace a system of rates which gave a variety of charges for service in the towns served by the two companies. The new rates provide that charges shall be the same in all of the towns that receive service.

The rates of the Coast Valleys Gas & Electric Company which are applicable to Monterey, Pacific Grove, Carmel, Salinas, King City and the surrounding territory on the Monterey Peninsula and in the Salinas Valley are reduced 8 per cent for lighting and 14 per cent for agricultural power use. Santa Cruz, Watsonville, Hollister, Gilroy and surrounding territories which are served by the Coast Counties Gas & Electric Company will have their lighting rates lowered on an average of 15 per cent and industrial power rates are lowered on an average of 18 per cent. Agricultural rates are lowered 12 per cent.

Both companies purchase power at wholesale from the Pacific Gas and Electric Company and distribute it in their respective territories. The reductions just announced bring the rates to approximately the pre-war basis.

Action on Girand Application Indefinitely Postponed

Feeling that it has no authority to grant permission to any person to start construction on any power project on the Colorado River until the Colorado River Compact is either accepted or finally rejected, the Federal Power Commission has indefinitely postponed action on the application for a construction permit made by James B. Girand.

Mr. Girand has for several years held a preliminary permit on a site at Diamond Creek on the Colorado River. The Commission has ruled that the priority right to the site held by Mr. Girand under the preliminary permit issued in 1921 will hold good until the Commission shall finally approve issuance of the license or reject the application.

The British Columbia Electric Railway Company has commenced work on a new high-tension transmission line from its hydroelectric plant at Jordan River to its auxiliary steam plant at Brentwood, B. C. The distance is 35 miles and the cost of construction is estimated at $150,000. The new line is not essential for present business, but it is being erected to guarantee uninterrupted service in the event of accident to the existing line. The company, too, has under consideration the advisability of extending its service to Ladysmith and Nanaimo, coal mining towns some 60 miles distant from Victoria.

The Southern California Edison Company has applied to the California State Railroad Commission for permission to issue $11,500,000 of twenty-year 6 per cent bonds. The money is to be used in financing part of the $26,000,000 additions that are being made to the properties of the company.

Pelton Gets Contract for Pit River No. 3 Turbines

The Pacific Gas and Electric Company has awarded the contract for building three 33,000-hp. vertical reaction turbines at its Pit River No. 3 plant to the Pelton Water Wheel Company, of San Francisco.

These units will operate under a static head of 313 ft. and an average effective head of 280 ft. They will be of materially greater dimensions than any turbines so far installed in the West, the only units comparable with them in horsepower output going for considerably higher heads, and therefore handling smaller quantities of water. Each casing will consist of five pieces, each piece weighing ten tons or more.

The turbines will embody the most recent advances in design developed both by the Pelton Water Wheel Company and its associate the I. P. Morris Department of the Wm. Cramp & Sons Ship & Engine Building Company. One of these three turbines will be equipped with Pelton rubber seal rings, and if the test of service shows materially better results than for the other two units, rings will be installed on these as well. Each turbine will have disk-type guide vanes and a spreading draft-tube.

The contract includes besides the main units, the governors, oil-pumping sets, and other accessory apparatus, as well as three 108-in. butterfly valves and an impulse wheel for operating a spare exciter set.

Southern California Edison Co. Reduces Electric Rates

Rates which will become effective after Nov. 15, will give residents of southern California lighting service at a lower cost than has ever been offered there before. The new schedule has recently been announced by the Southern California Edison Company.

The reductions that will be made place the charge for the first 50 kw-hr. at 6.5 cents per kw-hr.; the next 200 kw-hr. at 5.5 cents per kw-hr. The rates then slope off until all current over 5,000 kw-hr. per meter per month is charged for at the rate of 3 cents per kw-hr. These rates apply to the southern California districts of the company while in the San Joaquin Valley districts of the company the initial rate is one-half cent per kw-hr. higher. All current in excess of 1,500 kw-hr. is sold at the 3.25-cent rate.

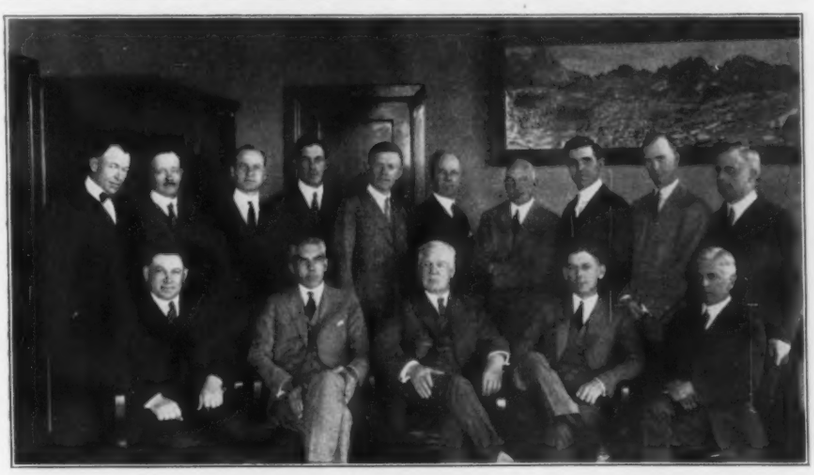
Reductions will also be made in other classes of service. Street lighting rates will be reduced 11 per cent, industrial power rates will be lowered 10 per cent and agricultural rates in southern California districts will be reduced 10 per cent. Railway power rates will be lowered 6½ per cent and power rates for re-sale will be reduced by 7½ per cent. Agricultural rates in the San Joaquin Valley districts will be reduced 7½ per cent.

The saving that will be made by consumers of the Southern California Edison Company is estimated by the California State Railroad Commission to be $2,200,000 a year. This estimate is based on the 1923 income of the company. The present lighting rates of the company provide for a charge of 7.9 cents per kw-hr. after the first 50 kw-hr., grading off into a charge of 4 cents per kw-hr. for all current in excess of 5,000 kw-hr.

Flywheel Breaks in Vernon, B. C. Steam Generating Plant

A curious accident happened at Vernon, B. C., recently, when the 20-ton flywheel of a steam engine of Swedish manufacture, at the city's electric generating plant, burst, doing considerable damage to the power house, but, fortunately, injuring no one. The two men were in the act of stopping the engine for the night when the accident occurred, one man being on either side of the wheel. The fragments of metal, some of which weighed several tons, flew off in a direct line to that in which the wheel was running, some going through the roof, some through the concrete walls.

Vernon has had considerable difficulty in keeping its streets and houses lighted since the accident. Among other devices, the city steam roller has been harnessed to one of the dynamos and has rendered valiant aid to the two 200-hp. engines, which were uninjured.



Executives of the San Francisco office of the General Electric Company assembled to bid Dr. Thomas Addison farewell upon his retirement after 33 years of active service with the company. The men reading from left to right are: (standing) J. R. Augustson, H. L. Nagel, M. Rhine, L. E. Voyer, F. E. Boyd, C. A. Loring, A. V. Thompson, J. W. Mahoney, A. G. Jones, G. I. Kinney, (seated) R. M. Alvord, E. O. Shreve, Dr. Thomas Addison, J. V. Anthony and R. F. Monges.

Farley Osgood Is Favored for Institute Presidency

The placing of Farley Osgood's name in nomination for the presidency of the American Institute of Electrical Engineers is meeting with particular favor among members of the Institute on the Pacific Coast in view of Mr. Osgood's withdrawal from the candidacy a year ago when Prof. Harris J. Ryan of Stanford University was a candidate for the office. Mr. Osgood's nomination has been seconded in a petition signed by more than fifty of the leading engineers on the West Coast.

Aside from being one of the most active members of the Institute, Mr. Osgood is vice-president and general manager of the Public Service Electric Company of Newark N. J. After completing his studies in the Massachusetts Institute of Technology, he became associated with the American Telephone & Telegraph Company. His rise with this company was rapid and within five years he became territorial manager of New Jersey. In 1903 he was made chief engineer of the New Milford (Conn.) Power Company and four years later he became general superintendent of distribution of the Public Service Electric Company. In 1917 he was made vice-president and general manager of this company. His company set a remarkable record during the war under his direction, when it was hard pressed to keep ahead of the industrial power demands of the district which it served.

Mr. Osgood has been both a vice-president and manager of the American Institute of Electrical Engineers besides having held many important committee positions. He was instrumental in the formulation of the National Electrical Code as the Institute's representative on the committee which prepared those specifications. He has also been active in the affairs of the National Electric Light Association.

Umatilla Rapids Project to Be Discussed at Meeting

To further plans for immediate commencement of work on the Umatilla Rapids power project, a meeting of the Umatilla Power Site Association was called to be held in Pendleton, Ore., on Oct. 29. United States Reclamation Service engineers recently reported that exploration work for a proposed 50-ft. dam had resulted in one drill penetrating solid rock to a depth of 65 ft.

Members of congressional delegations and the governors of Washington and Oregon, with reclamation officials, were invited to attend. The project would effect 270,000 acres and develop an estimated horsepower of 800,000.

To give a more personal and intimate service to the electrical industry of the Pacific Coast, the directors of The Society for Electrical Development, Inc., have authorized the establishment of an office at 527 Rialto Building, San Francisco, Calif., Samuel H. Taylor, formerly president of the Electric Railway & Manufacturers' Supply Company of San Francisco, has been appointed Pacific Coast manager. Mr. Taylor will continue to serve as secretary of the Pacific Coast Electrical Association.

San Diego Theater Will Be Completely Electrified

Builder Claims That Theater Will Surpass Any on Pacific Coast in Regard to Up-to-Date Electrical Installation

Claiming that its electrical equipment will surpass that for any theater in the West, Robert Hicks of San Diego, Calif., is having rushed to completion the new $800,000 Balboa Theater, at the corner of Fourth and E Streets, so that the house may be opened to the public Christmas week. Southern Electric Company of San Diego, is doing the electric installation for the theater.

The theater will be equipped to be lighted on either the a.c. or d.c. service of the central station lines to take care of any emergency. Exits will be wired for two lights, one the emergency circuit, the other the regular circuit. There will be no proscenium light strips, but the auditorium will be lighted by concealed lighting units. Aisle lights will be provided also.

The stage will have, beside a full equipment of stage pockets, a two-row footlight, with outlets staggered; four 45-ft. borders, in which will be used 500-watt lamps on 12-in. centers. Provision for four colors to each border will be made, having 11 lamps per color, in individual compartments over which color shades will be used.

The organist and orchestra will be lighted by floods concealed in the ceiling, and over which color screens may be used. The dimming apparatus will be particularly complete. One bank of continuous duty interlocking dimmers, controlling both stage and house lights, with color masters and stage masters are to be installed. Space is to be provided for another complete set of dimmers at a later date.

A complete annunciator buzzer system, connecting the stage and the fifteen dressing rooms, is to be installed, with a master button to ring all at once if necessary. Return call buzzers between the stage and projection room, the projection room and orchestra, and the projection room and organ console, will give control of much of the house to the projection operator. Pockets in the front of the balcony for flood lights will also be controlled from the projection booth. Curtain motors will be controlled electrically from both stage and projection room. Four special gang push button plates, three of which will be in the projection room, will enable the operators to close, open, or stop either of the three or four curtains at any of four positions.

There will be three projection machines in the booth, besides spot lights, arcs, steriopticons, etc. House lights will be controlled from the projection booth by means of a douser circuit. Below the projection room will be a special rheostat room, in which will be housed a 140-amp., 75-volt d.c. flat compound interpole type generator, direct connected to a three-phase, 220-volt, 1,750-r.p.m., 40-hp. motor. For emergency a Westinghouse automatic starting rectifier will be provided as well. A preview room will also be controlled from the projection room.

A 200-watt baby spot in the foyer ceiling will illuminate the usherettes. Foyer and plaisance brackets, lobby, cove and flag floods, as well as ceiling floods, promise to make for unusual foyer lighting.

The exterior of the building, which is to be of pure Spanish architecture, will be lighted by running borders and floods. The tower will receive silhouette flood lighting, declared to be unique in treatment.

Marquise lighting, letter signs, and later a roof sign, will also receive special electrical equipment. Power will be used in the stage carpenter shop, in the organ operation, in the echo organ in the balcony loft, and a special direct current set will be installed on the stage for stage flood arcs. Temperature control apparatus, a heating system, the vacuum cleaning system, and supply and exhaust air fans, as well as a fire sprinkler system, will be electrically controlled and operated.

Wm. H. Wheeler, of San Diego, is the architect, and Holmes & Sanborn, of Los Angeles, are the consulting engineers in charge of the construction of the theater and office building for the Balboa Amusement Company, of which Hicks & Strobeck are the managers.

Fires Damage Utility Company's High Tension Lines

The series of disastrous forest and brush fires that have ravaged southern California during the past few weeks have taken their toll from the utilities as well as from private owners. Many of these fires have been caused by the grossest negligence and others have been purely accidental, but the net result has been costly indeed.

The Southern California Edison Company has suffered but slightly from these events but on Oct. 13 a fire raging in the Verdugo canyon region burned through the 22,000-volt transmission line feeding into Los Angeles and caused some service interruption. Owing to the excellent tie-in system of feeders the company was able, within a short time, to resume service and to throw the load to other stations. Edison crews fought with firemen and civilians in numbers up to 2,000 persons to control the conflagration which burned for many hours and which caused the death of at least two people.

The annual sales meeting of the Pacific Coast organization of the Westinghouse Lamp Company was held in San Francisco, Oct. 9-12. Representatives from San Francisco, Los Angeles, Portland, Seattle and Salt Lake City were in attendance at the meeting. R. W. Murphy, Pacific Coast manager of the Westinghouse Lamp Works, presided at the conference.

Electric Trucks Are Subject of Society's Monograph

The first monograph of a very inclusive publication program under the electric truck activity of the Society for Electrical Development, entitled, "Putting Electricity to Work to Reduce Delivery Costs," has just been released.

Although this forty-page fully illustrated booklet has been prepared primarily to interest central station executives, it contains much of interest to other branches of the industry. The cold facts of the application of electricity to trucking, written into inspirational copy, "Putting Electricity to Work to Reduce Delivery Costs," sums up the how, why and wherefore of central station interest in a battery charging load. Its contents treat of the following main subjects:

The electric truck as a means of solving the short-haul frequent-stop delivery phase of a great national transportation problem with emphasis upon the vast field for developing its more universal use.

What a battery charging load which comes at off-peak hours and at a very profitable rate, means to the central station in kilowatt-hours.

The electric truck at work in central station business—presenting the arguments of low cost, efficiency, long life, reliability, etc.

How a central station should proceed in developing electric truck business—a practical working basis for organizing an Electric Truck Bureau.

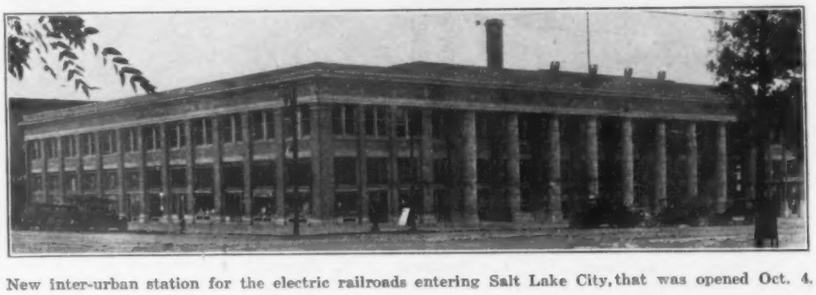
Copies of this monograph are available to non-members of the Society at 70 cents each and may be secured upon application to The Society for Electrical Development, Inc., 522 Fifth Avenue, New York City.

Electric Railways Dedicate New Station at Salt Lake

The new interurban station for electric railroads of Salt Lake City, Utah, was formally opened to the public Oct. 4. The big waiting room, which is 125 x 42 ft. in dimension, with a ceiling two stories high, was specially decorated and lighted for the occasion, and all other parts of the new building were in festive garb.

Former Governor Simon Bamberger, chairman of the board of directors of the Bamberger Electric Railway, with other officials of that road and of the Orem Electric Railway, were on hand.

The building, which is the local terminus of the Bamberger and Orem lines, was constructed by the two electric roads at a cost of $300,000. The second story is divided into offices, including those of the traffic and operating departments of the two roads. On the first floor the waiting room and ticket office, which are handsomely finished in marble and tile, occupy the central position, while at the south end of the building there are offices and stores facing the street.



New inter-urban station for the electric railroads entering Salt Lake City, that was opened Oct. 4.

Public Superpower System Plan of International League

Officials of the Public Ownership League of America, who have recently returned from the international public ownership conference held in Toronto, Canada, have announced that they have been instructed to proceed with plans for a nation-wide drive for a public superpower system. The men have been instructed by the Canadian Conference delegates to prepare a measure to be presented to Congress which would provide for a federal superpower commission to be charged with the duty and responsibility of developing the nation-wide public superpower system.

A canvass is also to be made of the members of Congress to determine their views upon the public superpower project. Appeals are also to be made to the governors of all states suggesting that they back the project. Similar appeals will be sent to the leading municipalities throughout the United States.

The Canadian conference favored the forming of a superpower system which would involve every state in the Union and Canada.

Edison Companies Object to Use of Name Incorrectly

That several electric utility companies not rendering Edison service were using the name "Edison" in their corporate names was pointed out at the recent convention of the Association of Edison Illuminating Companies at Dixville Notch, N. H. The executives of several of the companies represented in the association pointed out that this use of the name was misleading.

A committee composed of Samuel Insull, C. L. Edgar and J. W. Lieb, made a report to the association and the following resolution was unanimously adopted:

Whereas it has come to the attention of the Association of Edison Illuminating Companies that in the incorporation of various companies throughout the United States for the creation, merger or combination of public utilities, there is a growing tendency to make use, without apparent authority, of the name "Edison"; and

Whereas it is evident that the chief purpose of such use of the name "Edison" is to mislead by taking advantage of the significance which the name has acquired, in the first place from the illustrious achievements of Mr. Edison himself, which have made the name a household word in this country, and in the second place from the position enjoyed by the member companies of this association, which, striving from the first for the very highest standards in the electric light and power industry, have won the public's confidence and good will as reflected in the high place their securities hold in the esteem of the investing public; and

Whereas such unauthorized use of the name "Edison" is unfair both to the members of this association, which have contributed so much to maintaining the significance of that name, and to the investing public;

Now, therefore, be it resolved, that the officers and the executive committee of this association be, and they are hereby, directed to take such steps as may be practicable to stop further unauthorized use of the name "Edison," and that the member companies of this association in localities where such unauthorized use may occur be, and they are hereby, urged to do whatever may be in their power to aid and make effective the efforts of the officers and the executive committee with respect to carrying out the purpose and intent of this resolution.

Comparison of Power Generation Made by Federal Agents

The Department of Commerce has recently published preliminary figures relating to the kilowatt-hours of electric current generated by central electric light and power stations both commercial and municipal and by electric railways, in 1922, as compared with 1917 and 1912. These figures do not include the output of electric plants operated by mines, factories, hotels, etc., which generate for their own consumption, or those operated by the Federal Government and state institutions.

The amount of current generated in 1922 aggregated 45,307,536,711 kw-hr., as compared with 32,678,806,061 kw-hr. in 1917 and 17,621,808,893 kw-hr. in 1912, an increase of 38.6 per cent from 1917 to 1922, and of 157.1 per cent for the ten-year period 1912 to 1922.

"Better Lighting in Store and Office as an Asset to Business" is the title of a special 12-page booklet which the Society for Electrical Development has just completed. The subjects treated cover the flood-lighting of commercial buildings; the electric sign; correct window lighting and up-to-date special or auxiliary lighting units for the window; store-interior lighting; the lighting of offices and the maintenance of a lighting system. The Society also has available a consumer-booklet dealing only with store lighting—"Building Store Profit with Light" which is a part of its "Building Store Lighting Business" campaign material.

When the engineers who attended the Pacific Coast Convention of the American Institute of Electrical Engineers at Del Monte, Calif., left that spot to go on the inspection trip of the Big Creek project of the Southern California Edison Company they did not expect to meet winter weather. A snow storm greeted the party when it made its inspection of the tunnel work of the company at the upper end of Huntington Lake on Oct. 7, 1923. A small part of the group that made the trip is shown in the illustration above.

Books and Bulletins

SOUTHERN PINE MANUAL OF STANDARD WOOD CONSTRUCTION

Published by the Southern Pine Association, New Orleans, La. 186 pages. 4½ x 6¾ in. $1.50.

In the ninth edition of this handbook which has just been published, a considerable quantity of material has been added. The new matter includes data on timber working stresses based on recent extensive tests, new matter relating to the design of latticed wood trusses and the calculation of nailed and bolted connections in timber construction. This new material should be of considerable value to the architect, engineer and contractor.

In general the new edition covers the field in the same way as the eighth edition did. The aim of the manual remains to give the architect, engineer and contractor all of the information that may be needed in the solving of everyday problems in wood construction. The numerous tables giving data concerning the properties of yellow pine present this information in an exceptionally satisfactory manner.

Practice regarding almost all types of wood construction are covered in the manual and suggestions as to sizes of materials to be used are made. Readable tables give accurate data concerning the stresses, strains, deflections, etc., that will result in the application of various loads to a large variety of timbers.

Charles T. Main, engineer of Boston, Mass., has recently published Volume No. 3 of his series of books entitled "Industrial Plants." The new book contains a wide variety of illustrations showing the class of work in which Mr. Main and his associates have been engaged, as engineers, during the construction of the plants. Although most of the work was done in the eastern states, there are applications which would be of interest to western engineers. Most of the plants which have been covered in the booklet have been extensive users of electrical energy.

The British Columbia Electric Railway Company, Ltd., has recently prepared for distribution to its stockholders a booklet which constitutes a most comprehensive survey of the properties of that public utility. Editorial matter and illustrations give a thorough understanding of the extent to which the company has gone into the developing of the central station industry in the territory that it serves. The booklet is filled with descriptive matter and photographs of the generating plants and substations operated by the company and a considerable amount of space is devoted to the electric street car and interurban business that is conducted by the company. The booklet is an excellent example of how a public utility may show its owners what it is doing. A small number of the booklets will be distributed to leading citizens in the territory that the British Columbia Electric Railway Company, Ltd., serves.

Meetings

Hallowe'en Party Is Conducted by San Diego Club Men

Plans for a Hallowe'en party were announced by Fay Smalley, chairman of the program committee of the San Diego Electric Club at the Oct. 16 meeting of the electric men of San Diego, Calif. While most of the Electric Club meetings are noon luncheon affairs, it is the purpose of the organization to stage an occasional general get-together social event to which women are invited. Tuesday evening, Oct. 30, was set as the date for the first of these events this season, and a Hallowe'en party was arranged. The San Diego hotel ballroom was chosen for the affair.

Beginning with a dinner at 6 o'clock, the program was announced to include a talk by Carl Heilbron, on "The Progress of San Diego and the Part of Electricity in It." After the banquet the evening was planned for dancing. Hallowe'en decorations were to be arranged for so as to give the party true holiday flavor.

Committees in charge were named by Mr. Smalley as follows: Floor committee: Walter Wurfel, chairman, Jess Zweiner, Hugo Kuehmsted, G. H. P. Dellman, Bert Rose, Charles Dent, W. A. Cyr, and Bert Johnstone. The meal arrangements were to be in charge of J. F. Munro, chairman, A. Schreiber, and Bruno Barth. Decorations were to be in charge of Guy Miller, chairman, Phil Mayer, P. P. Pine, A. E. Scott, and L. M. Klauber. A ladies' reception committee consisted of Mesdames Jess Zweiner, chairman, Wurfel, Smalley, Kuehmsted, Johnstone, Cyr, Miller, Heilbron, Dent, and others.

Los Angeles Club Presents Cup to San Diego Club Men

The presentation of a hammered silver loving cup, the gift of the Electric Club of Los Angeles to the San Diego Electric Club, was the outstanding feature of the San Diego Electric Club's meeting of Oct. 16. The cup was presented to the club of the southern city by the northern electrical men in appreciation for the courtesies shown when the Los Angeles club visited San Diego on Sept. 27.

Mayor John L. Bacon of San Diego was the speaker of the day, being introduced by Bert Johnstone, city electrician, who had charge of the day's program. Mayor Bacon spoke upon the problems of city administration as contrasted with business administration. His topic was "What a City Can and Cannot Do." Fred Rhodes, city manager, was also present as a guest.

At the Oct. 9 meeting of the Electric Club G. H. P. Dellman, who was the day's chairman, introduced Judge Edgar Luce, of the superior court at San Diego. Judge Luce related numerous humorous incidents in court experience and kept the assembly amused throughout his talk.

B. J. Little, advertising manager for the Pacific Telephone Company, O. M. Collins new city electrical inspector, succeeding the late Walter Draper, and R. I. Minson, of the power company, were the day's guests. A. E. Johnson, resident engineer of the telephone company, A. R. Whisler of the power company, and E. W. Adams, business manager for the local electrical union, were introduced as new members of the club.

State Association Holds Regular Meeting at Sacramento

On Oct. 26, 1923, eighty-four members of the California State Association of Electrical Contractors and Dealers left San Francisco by special steamer for Sacramento. The following day there were held morning, afternoon and evening meetings at the Traveler's Hotel and many subjects of interest to the entire membership as well as to the industry in general were brought up and discussed.

Addresses were made by F. V. Mitchell, a certified public accountant who has devoted special attention to the affairs of electrical contractors and dealers, and by Albert H. Elliot, a San Francisco attorney who has been intimately connected with the electrical trade for a number of years. In the evening Mr. Elliot spoke again and gave a most inspiring talk on the Constitution of the United States. A full account of the meeting and trip will be given in the Nov. 15 issue of the Journal of Electricity.

COMING EVENTS

California Industries Exposition—
Exposition Auditorium—San Francisco, Calif.
Nov. 17-Dec. 2, 1923

American Society of Mechanical Engineers—
Annual Meeting—New York, N. Y.
Dec. 3-6, 1923

Denver Meetings Are Addressed by Eastern Engineer

An illustrated lecture dealing with "Superpower Systems for the Joint Use of Industries and Railways" was delivered before the Denver, Colo., section of the American Institute of Electrical Engineers on Oct. 19, by W. S. Murray, consulting engineer of New York, N. Y. The meeting was held at the Adams Hotel and was conducted in Mr. Murray's honor.

Mr. Murray's address took into consideration the economic production, transmission and distribution of power for joint use by the industries and railways and the stabilizing of it through private ownership under public regulation. The electrification of railways in relation to superpower systems was also considered by the speaker.

Under the auspices of the Sacramento Bee, a cooking school will be conducted in Sacramento, Calif., Nov. 6-9. Miss Bernice Lowen, home economist of the Edison Electric Appliance Company, Inc., will be the lecturer at the school. The lectures and demonstrations will be conducted in the Masonic Temple Auditorium.

Executive Claims Radicals Are Active in Washington

Stating that the radicals of the state of Washington were endeavoring to obtain control of the light and power companies there by advocating state ownership of public utility companies, Norwood W. Brockett, vice-president of the Puget Sound Power & Light Company, told the Lions Club of Spokane, Wash., that socialists of national reputation were canvassing the state to bring their proposals before the public.

Mr. Brockett told the meeting that the body of men behind the present scheme was the same group that two years ago put forward an initiative measure which proposed to permit municipalities to engage in any line of business and commercial industry. He said that the electric companies of the state were not seeking sympathy or even crying for a "square deal." That these companies are engaged in a legitimate, growing and prosperous business which is playing a part in the development of the state, was Mr. Brockett's opinion. He also stated that the companies were endeavoring to give the best possible service at the lowest possible rate consistent with earning a fair rate of return upon the money which the security holders had invested to make the service possible.

Illumination Subject of Talks in Colorado Springs

A series of lectures dealing with proper illumination were delivered before a number of meetings held in Colorado Springs, Colo., recently by J. T. O'Day, illumination engineer for the Edison Lamp Works of the General Electric Company. The lectures dealt with the illuminating problems of business men, manufacturing plants and households.

The program of addresses included one before the Rotary Club of Colorado Springs and before the Advertising Club of that city. A public meeting was also held, to which all of the residents of the city were invited.

On Oct. 5, the Spokane, Wash., office of the General Electric Company gave a dinner at the Davenport Hotel, attended by the leading men of the electrical industry in Spokane. S. E. Gates, the local manager of the company, presided, and introduced as speaker of the evening, E. C. Fellows, motor specialist of the Seattle office, who gave an illustrated talk on the subject of recent improvements in General Electric motors. Among the guests were L. M. Simpson of the Grangeville Light & Power Company, Grangeville, Idaho, and several officials of The Washington Water Power Company, including J. E. E. Royer, assistant to the general manager; Lewis A. Lewis, sales manager; V. H. Greisser, chief engineer; and others of the commercial and engineering departments.

The San Francisco section of the American Institute of Electrical Engineers was addressed by Clyde L. Seavey, president of the California State Railroad Commission on Oct. 26. Mr. Seavey spoke on "Public Utility Regulation."

Manufacturer, Dealer and Jobber Activities

Woodill-Hulse Electric Company, 111 E. Third Street, Los Angeles, Calif., has been appointed southern California distributor for the Sunny line of appliances.

The Crescent Washing Machine Company, New Rochelle, N. Y., has recently brought out its new Model FF Crescent dish washing machine. This is a high speed automatic machine and contains many new and unusual features. The machine has a guaranteed capacity of 15,000 pieces per hour and is only 9 ft. long and slightly less than 3 ft. wide. It is furnished in galvanized iron, copper or Monel metal. The water capacity is 475 gal. per min. The electric motor equipment totals 5½ hp. A complete description of the device is contained in the folder which will be supplied on request by the factory.

Uhlig's Electric Store is a new contractor-dealer establishment that has recently started business in Klamath Falls, Ore. According to the cards of the new concern, "Electrical Conveniences Bring Happiness" and the motto of the employees is "Service With a Smile."

The Rome Wire Company, Rome, N. Y., has recently published two announcements dealing with Super Service welding cable and Super Service Junior cord. The pamphlets describe the uses of the conductors and give the sizes of the two products.

The Piedmont Home Electric Company has been established in Oakland, Calif., by E. V. Haines. The company has announced that it will carry a full line of electrical appliances and that it will also engage in repair work.

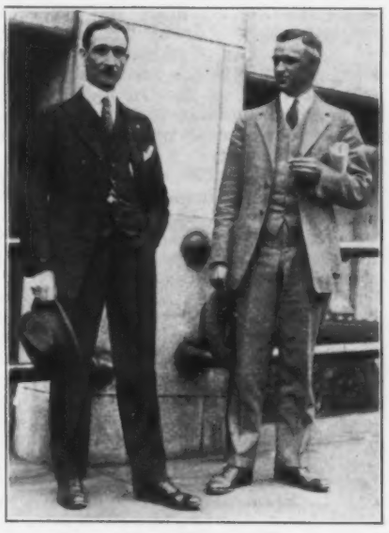
The American Wiremold Company, Hartford, Conn., held a sales conference at its home office Oct. 1-4. At that time field and home office representatives were in attendance and much educational discussion was presented to those who attended the conference. George A. Gray, of the George A. Gray Company of San Francisco, and Pacific Coast representative of the American Wiremold Company, was among the men that were present during the discussions.

The Crysteel Works of the Benjamin Electric Manufacturing Company, Chicago, Ill., has recently prepared a bulletin which deals with the art of porcelain enameling of steel. The booklet is entitled, "Crysteel, How and Where." The story, of how the enameling is done, the crude materials that are used, the operations that are involved and finally a list of products that are obtained, is presented in a most attractive manner. The booklet may be obtained by addressing the manufacturer.

The Hisey-Wolf Machine Company, Cincinnati, Ohio, has recently published Bulletin No. 1305. This booklet supersedes Bulletin No. 1304 and is devoted to "Hisey" ball bearing grinding machines manufactured by the company. A full description of the various types of machines is given in the bulletin. Copies may be secured by addressing the manufacturer.

The Apex Electrical Distributing Company, Cleveland, Ohio, is conducting a new type of sales contest among its salesmen. The new contest is covered by rules which give credit for sales in proportionate amounts to the down-payments that are secured on all sales. The contest started in September and will last until November. Prizes will be awarded each month according to the total amount of the down-payments that the salesmen report.

The Butte Electric & Manufacturing Company, of San Francisco, will after Nov. 1, occupy its new reinforced concrete building at 956 Folsom Street, in that city. The concern has been located at 534 Folsom Street for a number of years.



According to the photographer who took this picture, J. J. Agutter of the J. J. Agutter Company (left), and Fred J. Larkin of Garnett Young & Company, had just reached a deadlock on the question "Is It Wetter in Portland or in the Winter?" when the trigger was released. The photograph seems to say that Mr. Larkin has put a good point before Mr. Agutter over which the latter Seattleian is for the moment stopped. The roll under Mr. Larkin's arm contains the comparative data on the subject under discussion.

The American Spiral Pipe Works, Chicago, Ill., has recently published Catalog No. 22. This catalog is devoted to a description of Taylor's spiral-riveted pressure pipe. In this booklet there is contained a quantity of material showing applications of the product giving a comprehensive idea of the adaptability of the pipe. Price lists on the line are included in the catalog.

C. Brandes, Inc., has recently placed on the market a loud speaker radio receiving apparatus which is to be known as the Brandes Table-Talker. The reproducing unit is substantially of the same design as that used in the company's headset unit. The new piece of apparatus is finished in a deep brown with a crystalline finished horn and oxidized copper base.

C. W. Flack, who some time ago bought the electrical contracting and supply business of the Stewart Electric Company of Bellflower, Calif., is now located in new quarters at 729 Somerset Avenue in that town.

Edward G. Herbert, Ltd., Levenshulme, Manchester, England, has recently placed on the market a new hack saw, sawing machine and saw grinding machine. The saw and sawing machine are designed for high speed work. All three devices are discussed in a recent catalog of the firm.

The Link-Belt Company, Chicago, Ill., has recently purchased the Meese & Gottfried Company of San Francisco, Los Angeles, Seattle and Portland. For the past ten years the Link-Belt Company has been distributing its products on the Pacific Coast through its subsidiaries, the Link-Belt Northwest Company of Seattle and the Link-Belt Pacific Company of San Francisco. The recent consolidation of distributing and manufacturing facilities will be used in serving the Pacific Coast market. The new organization will be known as Link-Belt Meese & Gottfried Company. Headquarters will be maintained at San Francisco. The officials of the new company will be Charles Piez, chairman of the board; B. A. Gayman, president; Harold H. Clark, vice-president and sales manager; Leslie W. Shirley, treasurer, and Richard W. Yerkes, secretary.

The United Electric Company, Canton, Ohio, manufacturer of the Ohio vacuum cleaner, has recently prepared a new set of attachments for use with the Model 5 Ohio cleaner. The new set of attachments is composed of nine cleaning tools as compared to seven tools in the set displaced. The new list includes a nozzle attachment, hose, fiber connector tube, two-piece fiber extension tube, suction tool, brush tool, blower attachment and rubber crevice tool.

The Killark Electric Manufacturing Company, St. Louis, Mo., has recently placed on the market a radio frequency amplifying transformer. The device is claimed to be of a different nature from any that are now on the market. The new radio frequency amplifier is designed for use with a loop antenna and is made in three different types for one, two or three stages of radio frequency amplification.

The Automatic Electric Heater Company, Warren, Pa., has recently brought out a new device for controlling automatic electric water heaters. The new apparatus is known as the Clark selective load control and is designed to control the maximum demand of domestic installations. The control unit is adjustable from any demand between 2 and 6 kw. and when attached to the automatic water heater regulates the total demand. When other electrical devices operating on the same meter with the water heater bring the total demand up to that for which the regulator is set, the water heater is automatically cut out until this demand is reduced. When the demand is again lowered the water heater is automatically cut-in. Water heaters which provide storage will keep a sufficient quantity of water to carry the user over the period when the peak cuts the water heater out of service. The claims of the company are that with this device the demand of the customer will be made more constant than if the water heater were allowed to remain on the line at all times. The company also manufactures the Sepco automatic electric water heater.

Personals

Norman Read, vice-president and general manager of the Colorado Power Company, has been elected to succeed to the presidency of the Rocky Mountain division of the National Electric Light Association at the close of the present fiscal year, June 30, 1924. The

NORMAN READ

election was held at the recent annual convention of the division in conjunction with the Colorado Public Service Association at Glenwood Springs, Colo. Mr. Read is a past president of the latter association and has served as vice-president of the Rocky Mountain division for the past two years. Although a native of England, Mr. Read received all of his education in Colorado, graduating from the University of Colorado as an electrical engineer in 1905. The same year he entered the service of the old Denver Gas & Electric Company where he remained for two years in the engineering department. For a short time he represented the Nernst Lamp Company in the Rocky Mountain territory. In 1908 he became a consulting engineer in Denver, specializing in hydraulic design and construction work, and remained in an independent capacity until 1910 when he was appointed assistant superintendent of power of the Denver Tramway Company. Later, when serving as superintendent of power and electrical engineer for that company, he resigned to become assistant general manager in charge of operations of the Colorado Power Company. In November, 1916, he was elected vice-president and general manager of the company and holds that position at the present time. Mr. Read is a past chairman of the Denver section of the American Institute of Electrical Engineers and is now a member of the executive committee of the national technical section of the National Electric Light Association. He also holds membership in the Denver Club, the Cactus Club, and the Denver Civic & Commercial Association.

E. A. Kneip, electrical dealer of Lancaster, Calif., was recently in San Francisco.

F. N. Averill, president, Fobes Supply Company, Portland, Ore., is a recent visitor to the San Francisco offices of the firm.

E. W. Green, of the Edison Electric Company, Indianapolis, Ind., was a recent visitor to San Francisco.

W. H. Whiteside, of the Westinghouse Electric & Manufacturing Company, Los Angeles, Calif., was recently in San Francisco on business for his firm.

F. B. Gleason, formerly San Francisco district manager and now general telephone sales manager of the Western Electric Company, was recently in San Francisco. He accompanied Charles G. DuBois, president of the company, on a visit to the Pacific Coast branches of the firm.

W. R. Wallace, chairman of the irrigation and drainage committee of the Salt Lake City Chamber of Commerce, has been appointed by the board of governors of the Chamber of Commerce to cooperate with the commissioners of Salt Lake County, the Salt Lake County Farm Bureau and agricultural interests in the development of reclamation in Salt Lake County.

Prof. E. E. F. Crighton, research engineer of the General Electric Company, visited Salt Lake City, Utah, recently. Professor Crighton gave a very interesting talk before the Utah chapter of the American Institute of Electrical Engineers, in which he set forth some of the latest theories and developments in connection with lighting research work and continuity of electric service.

E. W. Martin has been appointed Chicago district manager of the Valley Electric Company of St. Louis, Mo. Mr. Martin was for some time with the Westinghouse Electric & Manufacturing Company.

C. L. Krentz has been appointed as a member of the Chicago sales force of the Valley Electric Company.

Homer M. Hadley, Seattle, Wash., structural engineer, recently sailed for Japan to investigate the effect of the earthquake upon the many concrete modern structures in that country. Mr. Hadley, who was formerly structural engineer for the Seattle school district, is a specialist in reinforced concrete construction.

Mortimer E. Cooley, dean of the College of Engineering and Architecture of the University of Michigan, announced his resignation as president of the American Engineering Council of the Federated American Engineering Societies at the meeting of the Executive Board of the Council held in Rochester, N. Y., Oct. 12. Dean Cooley, in presenting his resignation to the Board, said that he retired on account of ill health. He also made it known that he had been granted leave of absence by the University of Michigan for the second half of the academic year 1923-1924.

H. G. Overbeck has resigned as assistant manager of the electrical department of the Mine & Smelter Supply Company at Denver, Colo., to represent the Meadows Manufacturing Company in the Rocky Mountain territory. The Meadowlark washing machine will be featured, with Denver distribution established at the Headrick Electric Co.

J. O. Presbrey of the Ivanhoe Regent Lamp Works of the General Electric Company, Cleveland, Ohio, was a recent visitor to San Francisco.

C. S. MacCalla, widely known in the electrical field of the Pacific Coast states through his long connection with the Washington Water Power Company, Spokane, Wash., and more recently vice-president and general manager of the Virginian Power Company, Charleston, W. Va., has been elected vice-president and general manager of The Pennsylvania-Ohio Electric Company, and The Pennsylvania-Ohio Power & Light Company and other subsidiaries, succeeding Garrett T. Seely, who has resigned the presidency and general managership of the Pennsylvania-Ohio companies.

Warren H. Williamson of the Los Angeles Gas & Electric Company, Los Angeles, Calif., was a recent visitor to San Francisco in the interests of his company.

C. A. Maydwell, president of Maydwell & Hartzell, Inc., recently visited Los Angeles on a trip investigating business conditions in that territory and also relative to establishing a branch at that point.

W. H. Ude was appointed director of public relations of The Washington Water Power Company, Spokane, on Oct. 1, 1923. The position is a newly created one and Mr. Ude is the first to hold it. He was born in St. Joseph, Michigan, Oct. 30, 1879, and spent the first part of his life in that state. After graduating from high school in Dearborn, he entered the service of the Flint & Pere Marquette Railroad and for the next five years held various positions with that company. In 1903, he entered the employ of the Northern Pacific Railway at Tacoma, Wash., and on July 1, 1905, he was promoted to the position of traveling passenger agent, with headquarters at Spokane. On March 1, 1909, he was advanced to the position of city passenger agent and on July 15, 1918, was selected by the various rail-

W. H. UDE

ways serving Spokane to take charge as agent of the Consolidated Ticket Office under the U. S. Railroad Commission. When the federal control was discontinued, April 1, 1920, Mr. Ude became general agent of the Northern Pacific at Spokane, and held that position until Feb. 1, 1923. On that date he was advanced to the position of assistant general passenger agent, with headquarters in Chicago. He resigned Oct. 1, 1923, to become director of public relations with The Washington Water Power Company.

James R. Cravath, consulting engineer of Chicago, Ill., has moved to Richmond, Calif., and is now president of the Pioneer Electric Company of that city. In addition to the above connection Mr. Cravath will do some consulting engineering work.

Paul M. Rainey, sales development manager of the Western Electric Company, New York City, was a recent visitor to the Pacific Coast. Mr. Rainey visited all the branch offices of the Western Electric Company in that territory.

Frank Mills, formerly salesman for the Electric Appliance Company, San Francisco, Calif., has been appointed as city salesman for the Allied Industries of that city.

C. N. Stannard, vice-president and general manager of the Public Service Company of Colorado, is in New York on business for the Doherty company. He also attended the American Gas Convention at Atlantic City early in October.

Philip S. Biegler, for the past two years associate professor of electrical engineering at the State College of Washington, Pullman, Wash., has been appointed professor of mechanical and electrical engineering at the University of Southern California, Los Angeles, Calif. Professor Biegler was employed on the Little Falls hydroelectric plant and transmission line work for The Washington Water Power Company in 1909 and 1910. Later he was professor of electrical engineering at the University of Montana and for five years

PHILIP S. BIEGLER

assistant professor at the University of Illinois, in charge of electrical laboratories. During the war he left the teaching work to become associate editor of Electrical World in New York City, but returned to the West in 1921 to resume university work. Professor Biegler has published results of research work in deep-well pumping and street lighting. He is a graduate of the University of Wisconsin and had four years experience in various departments of the Commonwealth Edison Company, Chicago, before coming West.

T. H. Dukelow, of the Southern California Edison Company, Los Angeles, Calif., was recently in San Francisco on business for that company.

Ben M. Maddox, of the Southern California Edison Company, Visalia, Calif., recently visited San Francisco on business.

R. G. Grebhill has sold his interest in the Thor Shop, Denver, Colo., to enter the appliance business in California. He has been succeeded by Andrew Stayert, a prominent auto accessory dealer in Denver.

William B. Milliken, special representative of Landers, Frary & Clark, New Brittain, Conn., is demonstrating the new Universal washing machine in the Rocky Mountain territory. Mr. Milliken was formerly representative in this territory for the Gillespie-Eden Company.

H. C. Hopkins has relinquished his duties as advertising manager for Majestic Electric Appliance Company, to devote his entire time to the interests of Westgate Metal Products Company of Oakland, Calif.

R. L. Pawling has been made chief operator at the Vestal substation of the Southern California Edison Company, having been advanced from the position of first operator at Venida.

F. C. Robinson of the Southern California Edison Company was a recent visitor in San Francisco, having been there on business for his company.

H. H. Courtright of the Valley Electrical Supply Company, Fresno, Calif., was recently in San Francisco.

E. B. Criddle, of the Southern Sierras Power Company, Riverside, was a recent San Francisco visitor.

Nate C. Harvey, vice-president and general manager of the Illinois Electric Company, Chicago, Ill., is in Los Angeles, where he will remain during the winter season.

Dean K. Chadbourne, of the Westinghouse International Company, left on the Siberia Maru, with Mrs. Chadbourne, on Oct. 22 for a trip of seven or eight months to the Orient. Mr. Chadbourne is manager for the Far East and will visit Japan, China, the Philippines, Australia and New Zealand. He is making the trip especially to establish new agents and connections in the far eastern territory and to assist in the electrical reconstruction of Japan. Before sailing, Mr. Chadbourne stated that his company has already received from Japan since the earthquake orders totaling over $2,000,000 and including switching equipment, transformers, and several hundreds of motors.

C. G. DuBois, president of the Western Electric Company, New York, and **Paul M. Rainey,** sales development manager of the Western Electric Company, New York, were recently in Los Angeles and were entertained at a banquet in their honor at the Biltmore Hotel.

Nels N. Nelsen, builder of all-electric homes and apartments in Fresno, Calif., has moved to Los Angeles, Calif., where he will engage in a similar line of effort. Mr. Nelsen has incorporated in his homes all the latest electrical appliances and conveniences and has won a name for producing houses of ready salability.

R. G. Gentry, commercial manager of the Public Service Company of Colorado, was a member of Mayor Benjamin F. Stapleton's party during the inspection of a natural auditorium in the Park of the Red Rocks near Denver. A plan is on foot to acquire this mountain auditorium for the city for concerts and outdoor operas. Mr. Gentry recently was elected first vice-president of the Lions Club of Denver.

Obituary

Leonard Eugene Voyer, assistant sales manager of the Edison Lamp Works in San Francisco, Calif., died of pneumonia on Oct. 27. Mr. Voyer was taken sick on Sunday, Oct. 21, but was confined to his bed only from Tuesday

LEONARD EUGENE VOYER

until the time of his death. Mr. Voyer was born in Junction City, Wis., in 1887 and was graduated from the University of Wisconsin with the degree of Bachelor of Science in electrical engineering in 1911. He entered the students' training course of the Edison Lamp Works of the General Electric Company on Aug. 1, 1911 and was connected with the Harrison, N. J., office of that concern until 1914 when he came to the San Francisco office. At the time of his death, Mr. Voyer was in addition to being assistant sales manager of the San Francisco office, the street lighting specialist for the San Francisco territory. Mr. Voyer was a member of the San Francisco Bay Cities chapter of the Illuminating Engineering Society and also of the San Francisco Electrical Development League. Mr. Voyer is survived by his wife and a daughter of six.

Robert B. Watts, of the firm of B. C. Watts & Company, Denver, Colo., dropped dead in that city on Oct. 11. Death was declared due to heart trouble. Mr. Watts was born in Louisville, Ky., and had lived in Denver for about ten years.

Henry E. Bothin, a director in the Pacific Gas and Electric Company, died suddenly at Santa Barbara on Oct. 14. In addition to his connection with electrical business he was also a director in the Natomas Company, the Sausalito Land & Ferry Company, the East Bay Water Company and the Judson Manufacturing Company.

The death on Sept. 30 of **Walter S. Draper,** assistant city electrical inspector for the City of San Diego and a pioneer electrical man there, is a personal loss to his legion of friends in that city. Mr. Draper came to San Diego from Indiana some 20 years ago. For many years he was wireman and in charge of fixtures for the Hartwell Electric Company, and afterward foreman and superintendent for the same concern. He went into business for himself some time later.

Trade Outlook

San Francisco

Fall buying is increasing and jobbers report deliveries at about normal. Retail trade lags somewhat but total volume exceeds that of a year ago and conditions seem to indicate steady improvement. Collections are reported to be satisfactory. Several new factory sites are being sought and those new industries already established report satisfactory progress. Some damage has been done by the rains but there is no serious reaction. Crop prices are favorable and shipments regular. Higher prices are quoted for dried and canned fruits and vegetables and money advanced against crops is now returning to be used for industrial purposes. The Japanese disaster has brought about the absorption of the entire old crop of rice and harvesting of the new crop is about under way.

Portland

During the first nine months of 1923 Portland building permits exceeded the high record of 1922 by nearly one and a half million dollars and this city was third among the Pacific Coast cities. The demand for all classes of construction remains firm.

The Port of Portland is making new records almost daily in the volume of cargo handled. The domestic in and out bound water business of the past nine months had a value of $133,401,997, an increase of nearly $41,000,000 over the same period of a year ago. Wheat, flour, lumber and apples are moving out of this port in record-breaking amounts. It is estimated that a million boxes of apples, mostly from the mid-Columbia orchards, will be exported to the United Kingdom and northern Europe this year.

About 40 per cent of the lumber shipments are moving by water. Production of lumber shows no signs of slackening. The rate of production is now 27 per cent above normal with prices firm. No noticeable increase has appeared in Japanese buying.

The power companies are very busy with extensions and are generating about 15 per cent more energy than a year ago. Ranges are moving well.

The prospects for a big holiday trade are excellent.

Seattle

Fall jobbing and retail trade are expanding, but caution and conservatism rule in buying, immediate needs governing new purchases. Future buying is evidently under the checkrein of price uncertainty, just as last spring, fall trade was in doubt. A continued drop in material prices is noted by electrical jobbers, these decreases being especially noticeable in conduit, wire and certain schedule materials. It is believed that the end of the decline in prices on this class of merchandise is not yet in sight. Business in the electrical jobbing field is good, with stocks in fine shape and easily maintained. Shipments from eastern factories are coming through very satisfactorily. There has been a heavy demand for electric heating appliances during the past two weeks of colder weather, particularly of the small portable heater. Electric ranges are moving well, while the demand for washers is holding up.

The lumber market continues extremely active, with fall needs running into substantial volume, and asserting a strengthening influence on prices, especially in view of the low stocks. A large number of Northwest lumber mills are running night shifts to supply the lumber demand.

Construction work continues active in nearly all lines, residence building being particularly heavy. A number of business buildings, stores and apartments are under way, and the outlook for fall building is encouraging.

Salt Lake City

Improvement in business conditions throughout the intermountain territory continues.

The Columbia Steel orporation is making rapid progress in the construction of its plant at Ironton, near Provo, Utah, and is expected to be in operation by Feb. 1, 1924. This company's activities, including the utilization of vast deposits of iron ore which exist in Utah, are expected to develop an immense industry for the intermountain section, which is sure to result in general industrial expansion, new homes, and additional population.

In the agricultural districts good crops have been harvested, and with fair prices the farmers will have little cause for complaint. The sugar beet situation is particularly favorable. Utah has won second place in the production of sugar beets in the United States by increased acreage, and favorable contracts exist between the sugar companies and the beet growers, with the result that the season will undoubtedly be very successful.

The mines are continuing to produce a large output, although the price of silver has had a slightly unfavorable effect in some localities. The price of copper has caused no reduction in the output of the Utah Copper Company.

Building activity continues, and is expected to do so until winter weather slows it up.

Spokane

The unusually large wheat and fruit crops, which have been moving during the past few weeks have presented a problem for the railroads of the Inland Empire and they have met all demands. This condition has kept the four railroad shops in Spokane working at full capacity on single shift.

While construction work continues at a rather modest level, the conditions for the coming year are expected to be exceptionally good, with a large amount of road work in prospect for eastern Washington, and much new building construction for the Inland Empire. The local lumber dealers have already felt an increase in demand from eastern points, this being attributed to the recent diversion of lumber from Coast mills to Japan.

During the past six months, five new factories making frame and sash have been put in operation in Spokane, and construction of two additional plants has been announced. Much of the product is shipped to the middle-west and Atlantic Coast. This is an interesting example of the tendency for finished wood products to be made on the Pacific Coast and it indicates the growing importance of the West as a manufacturing region.

Mining conditions continue to be good. The announcement that one of the smelting companies of Montana is contracting for 5,000 tons of zinc ores per month will stimulate activity in the mining of zinc in the Coeur d'Alene district.

Denver

Building operations in the larger cities of this region are still continuing at record figures. Reports for September have established new high marks and on Oct. 18 the total permits taken out in Denver during the present year passed the record figure established for the entire year 1922. So far the permits this year amount to $18,134,850, which is greater by $118,755 than the permits issued during the previous year. October permits have already passed the two million dollar mark.

Expected increases in quotations on electrical supplies, especially steel products, have not materialized. Wire and conduit are moving steadily and demand for schedule materials is not slackening. Local jobbers are working on several big transmission line projects.

Lamp and reflector business is brisk. Christmas orders for appliances are commencing to come in. Several large washing machine manufacturers are launching special campaigns in the territory. Radio sales are picking up.

Los Angeles

Manufacturers report excellent business prevailing with shipments becoming better and with deliveries improved. Wholesalers of electrical apparatus and devices report increased business due to fall and Christmas trade and this is expected to continue during the coming month. Business in supply lines consisting of conduit, wire and wiring devices continues excellent, due to the enormous amount of building construction. Retailers report business better than two weeks ago with a very bright outlook for the coming months. This is true of electrical retail stores and department stores and others handling electrical appliances and devices. Radio business, which suffered a slight slump during the past month, shows improvement, and steady improvement is expected during the coming months owing to the Christmas trade.

For the two-week period ended Oct. 15, 1923, building permits amounted to $10,281,758, which is approximately double that of the corresponding period of last year. Bank clearings for the same period amounted to $303,887,377.25, an increase of approximately 45 per cent over the corresponding period of a year ago.